

ceux du *Caprimulgus europæus* ; mais ils sont beaucoup plus petits, à maculature composée généralement de taches petites et nombreuses, parmi lesquelles il y a souvent des stries. Les taches pâles sont en général beaucoup plus nombreuses que celles de la gamme superficielle. Dimensions : 26, 19·2 ; 26·2, 20·2 ; 26·2, 19·5 ; 27·2, 20 ; 28·2, 20·3 ; 28·2, 19·5 millim.

COLUMBULA CRUZIANA (Knip et Prév.).

Les œufs d'une ponte présentent les dimensions suivantes : 23, 17 ; 23, 18·8 millim.

November 20, 1877.

Prof. W. H. Flower, F.R.S., V.P., in the Chair.

The Secretary read the following report on the additions to the Society's Menagerie during the month of October 1877.

The total number of registered additions to the Society's Menagerie during the month of October was 93, of which 37 were by presentation, 29 by purchase, 1 by exchange, 9 by birth, and 17 were received on deposit. The total number of departures during the same period, by death and removals, was 127.

The most noticeable additions during the month of October were as follows :—

1. A Layard's Flying Squirrel (*Sciuropterus layardi*¹), presented by Sir Charles Peter Layard, October 8th. This is the first example of this elegant little Ceylonese animal that has reached our collection.

2. A pair of East-African Buffalos (*Bubalus æquinoctialis*), purchased 27th October.

This is the animal lately described in our 'Proceedings' by Sir Victor Brooke (P. Z. S. 1875, p. 457), from a specimen living in the Zoological Gardens at Berlin, and there first well distinguished by him from the allied South-African species (*Bubalus caffer*), of which we have likewise living examples.

Mr. Howard Saunders exhibited a skin of the rare Aleutian Tern (*Sterna aleutica*), from Alaska, and made some remarks on its intermediate position between the true Terns (*Sterna*) and the Sooty Terns (*Onychoprion*).

The following papers were read :—

¹ *Sciuropterus layardi*, Kelaart, 'Prodromus Faunæ Zeylanicæ,' p. 56 : Tennent's Ceylon, vol. i. p. 148.









Smith

J. Smith lth

Hanhar

1. PHYLLORNIS FLAVIPENNIS.

2. PRIONOCHILUS QUADRICOLOR.





J. Smil lith.

$\frac{1}{2}$

Hanhart imp.

MEGAPODIUS PUSILLUS.

1. Contributions to the Ornithology of the Philippines.—
No. II. On the Collection made by Mr. A. H. Everett in
the Island of Zebu. By ARTHUR, Marquis of TWEED-
DALE, F.R.S., President of the Society.

[Received November 2, 1877.]

(Plates LXXVI.-LXXVIII.)

In the month of March last Mr. Everett, with the intention of extending his exploration of the Philippines, quitted Luzon¹, and proceeded to the island of Zebu, where he remained during April and the first few days of May engaged in collecting zoological specimens. Since 1872, when Zebu was visited for the first time by a zoological collector (Dr. A. B. Meyer², who then obtained eighteen species of birds), only two parties of naturalists (Dr. Steere and those attached to the 'Challenger' Expedition) have landed there; and they increased the number of known Zebu species to twenty-three. Of the important collection made by Mr. Everett during the few weeks he remained on the island I now propose to offer an account. Most of the birds collected in March were obtained by him near some coal-mines situated about 12 miles to the north of the port of Zebu, and some 6 miles inland. Mr. Everett writes, "The station is not very favourable for birds as compared with Luzon. Both the species and the number of individual birds seem less numerous. . . . *Tanygnathus luzonensis* and *Cacatua hæmaturopygia* are very abundant here, both flying wild in flocks. I saw neither of these birds in the neighbourhood of Manila. I am told of another Cockatoo, similar to *C. hæmaturopygia*, but with a red splash on the breast; but I have been unable to secure a specimen."

The birds collected in April were, I presume, obtained in the vicinity of the port of Zebu itself. Mr. Everett expresses himself dissatisfied with the results of his labours in the island, an attack of fever having confined him for some time to the house. Notwithstanding this, he has very considerably extended our knowledge of the avifauna of Zebu, having succeeded in securing 282 specimens of birds, representing 75 species.

When Mr. Everett commenced his researches in Zebu, only 23³ species of birds had been recorded as being inhabitants of that island. Yet he was able during the short period of his stay to add 54 species to our lists of its avifauna. These 54 species include 6 hitherto undescribed, viz. :—

Oriolus assimilis.
Phyllornis flavipennis.
Zosterops everetti.

Prionochilus quadricolor.
Turnix nigrescens.
Megapodius pusillus.

¹ *Antea*, p. 686.

² Trans. Zool. Soc. ix. p. 125.

³ 18 given in my memoir (*l. c.*), 1 obtained by Dr. Steere (Sharpe, Tr. L. S. ser. 2, Zool. i. p. 309), and 4 by the 'Challenger' Expedition (*Antea*, p. 538). I enumerated (*l. c.*) only 3 additional Zebu species, having through an oversight omitted *Numenius phaeopus*.

Two known species, though new to the Philippine fauna—

Hirundo javanica,

Rallina eurizonoides.

and two typical Indo-Malayan genera are added to the Philippine area, as restricted by me¹—

Phyllornis,

Prionochilus.

The known species of Zebu birds therefore now number 78, of which no less than 75 are represented in Mr. Everett's collection. The grand total of species inhabiting the Philippine area (as restricted by me, *l. c.*) Mr. Everett has increased by 8, and it now amounts to 276. Several of the species discovered by Mr. Everett in Zebu possess a peculiar interest. Such are:—*Oriolus assimilis*, a representative form of the remarkable *O. steerei* of Negros and Basilan²; *Xantholæma rosea*, hitherto, beyond Java and Sumatra, only known from Negros; *Dicrurus mirabilis*, *Æthopyga magnifica*, *Anthothreptes chlorogastra*, *Dendrophila œnochlamys*, all four hitherto only known from Negros, but which reappear in Zebu. Four Passerine species, of which the only previously known habitat was Luzon—*Volvocivora* (?) *cærulescens*, *Parus elegans*, *Oxycerca everetti*, and *Megalurus ruficeps*—have their range extended to Zebu.

1. CACATUA HÆMATUROPYGIA (1)³.

[Cebu, male, March, "pairing." Iris dull carmine, bill light lead-grey, feet and nails dark lead-grey. *b.* Female, March, "breeding." Orbital skin white, rest as in male.]

Another example of a female is marked "breeding in April." The dimensions of the male somewhat exceed those of the female.

2. PRIONITURUS DISCURUS (2).

The crown of the head in six examples of both sexes, belonging to a series of seven obtained in April, is bright verditer-blue. In the seventh the blue crown is less distinct. The elongated spatulate shafts of the middle rectrices vary in length in each specimen. The plumage of the two sexes is alike.

3. TANYGNATHUS LUZONENSIS (3).

[Cebu, female, April, "pairing." Iris, outer ring yellowish white, inner ring yellow-brown; maxilla scarlet, tip yellow; mandible orange, tip yellow; feet dirty greenish, nails dark grey.]

Not to be distinguished from Luzon, Negros, and Guimaras examples. The "pairing" male has the forehead verditer-green, the crown and nape verditer-green, each feather tipped with turquoise-blue. The cheeks are green; and there is no blue on the back or uropygium. Females (sex ascertained by Mr. Everett) are somewhat smaller, but in plumage and colouring do not differ from males.

¹ *Antea*, p. 687.

² The Basilan form will probably prove to be a third representative species.

³ The numbers following the titles are the same as those of my Memoir, Trans. Zool. Soc. ix. pp. 125-252.

4. *LORICULUS CHRYSONOTUS* (8).

[Cebu, male, April. Iris brown, bill orange-red, legs orange, nails brown.]

5. *MICROHIERAX ERYTHROGENYS* (10).

A single example (female) is in the collection, shot in April, and in full black and white plumage. The wing measures 4·87.

6. *SPILORNIS HOLOSPILUS* (16).

[Cebu, male, March. Iris deep golden yellow, orbital skin yellow, cere the same, but tinged with green; bill leaden grey, culmen and tip black; legs and feet dirty light yellow, the feet darkest, claws black. *b.* Female. Iris green-yellow, orbital and loreal regions bright yellow, with a slight green tinge; cere dull greenish, bill lead-grey, tip and culmen black; legs and feet dirty light yellow, claws black.]

7. *HALIASTUR INTERMEDIUS* (17).

[Cebu, male and female, April. Iris warm chocolate, bill grey tinged greenish yellow; cere light chrome, legs and feet light yellow, nails black. *b.* Female, April, "breeding." *c.* Immature. Iris cold brown, bill black, legs and feet light green-yellow, claws black.]

The immature bird is in brown and tawny dress, without any traces of white or deep chestnut.

8. *ELANUS HYPOLEUCUS* (18).

[Cebu, male, March. Iris crimson, cere greenish yellow, gape yellow, bill black, feet light chrome, nails black. Snake and small mammal in the gizzard.]

Mr. Gurney has been good enough to compare this example with the type.

9. *BUTASTUR INDICUS* (20).

[Cebu, female, March. Iris golden yellow, bill black, cere and base of bill deep chestnut, legs deep chrome-yellow, claws black.]

10. *SCELOSTRIX CANDIDA* (27).

[Cebu, male, April. Iris dark brown, bill white, nails dark brown-grey.]

11. *MEROPS BICOLOR* (36).

[Cebu, male, April. Iris crimson, bill black, feet brown.]

In a series of ten examples, male and female, there is no trace of green mingled with the bright chestnut of the head, nape, and upper back. An example of a female ("breeding, April") is not distinguishable from examples of adult males.

12. *EURYSTOMUS ORIENTALIS* (37).

Coracias orientalis, Linn. S. N. i. p. 154.

13. *ALCEDO BENGALENSIS* (38).

[Cebu, male, March.]

14. *ENTOMOBIA GULARIS* (44).15. *SAUROPATIS CHLORIS* (47).

[Cebu, male, March. Iris brown, bill black, feet dark brown.]

16. *XANTHOLÆMA ROSEA* (51).

[Cebu, male, April. Iris hazel-brown, bill black, legs and feet coral-red.]

Identical with Javan, Sumatran (Lamong), and Negros individuals. Two examples, marked female by Mr. Everett, have many of the throat-feathers yellow, tipped with red. They are probably immature birds. This species is but a developed form of *X. hæmacephala*, the only distinction between the two being that the yellow eye-patches and the yellow throat of that species are blood-red in *X. rosea*. Their distribution is curious; for while *X. hæmacephala* occurs throughout the continent of India and the Indo-Chinese peninsula, and on the Philippine island of Luzon, *X. rosea* is restricted to Java and the two Philippine islands of Negros and Cebu, while Sumatra, again, is inhabited by both species.

17. *MACROPTERYX COMATUS* (52).

[Cebu, female, March.]

18. *CENTROCCYX VIRIDIS* (64).

[Cebu, female, April, "pairing." Iris crimson.]

19. *LANIUS NASUTUS* (70).

[Cebu, female, March, "breeding." Iris brown, bill and legs black.]

A numerous series of the Philippine black-headed Shrike in full dress, obtained in Cebu by Mr. Everett, together with my Luzon series, enables me, after comparison made with *Lanius nigriceps* (as restricted *l. c.*) of India, to assert the specific identity of the two species. The generality of the Philippine birds have the uropygium of a paler, more tawny ferruginous hue than Bengal (Rognathpoor) and Goomsoor examples; the grey tint descends lower down the back; and the ferruginous colouring of the flanks and under tail-coverts is of a paler, more dilute, shade. Still one Cebu individual is not to be distinguished from an adult Bengal individual in this or any other respect. Philippine birds exceed somewhat in dimensions. Adult Tonghoo birds belong more nearly to *L. tricolor*; but I have not as yet met with either Pegu, Assam, or Darjeeling examples in which the deep uniform ferruginous dorsal colouring of *L. tricolor* runs up and joins the black of the nape, as in Nipaul individuals.

The examples of females marked "breeding" by Mr. Everett have the head and nape dark ashy brown, rather than black.

20. *LANIUS LUCIONENSIS* (72).

[Cebu, male, March and April; female, March.]

21. *ARTAMUS LEUCORHYNUS* (73).22. *GRAUCALUS STRIATUS* (74).

[Cebu, male, April. Iris fine deep crimson; bill, feet, and nails black. *♂*. Female. Iris light claret-red.]

These Zebu birds do not differ from Luzon and Negros examples. Two, in dark plumbeous-grey plumage without pale edgings to any of the feathers, are marked male; two, dark plumbeous-grey above and banded with black on the whole under surface, are respectively noted as being male and female; a fifth example, uniform grey with the exception of the breast, abdomen, and crissum, which are banded with black, is marked male. The last example appears fully adult, and perhaps represents the dress of the adult female.

23. *VOLVOCIVORA? CÆRULESCENS* (75).

[Cebu, male, April. Iris dark brown, bill and legs black. *♂*. Female, April, breeding, the same.]

Three males and as many females are in the collection. One of the males is in the pure black plumage of the adult; the other two have the black shaded with plumbeous. The females are dark plumbeous-grey, with darker margins to the dorsal plumes: one, an immature bird, has some of the secondary quills and some of the coverts margined with white. From the breeding female being in a plumbeous dress, we may infer that each sex in this species wears a peculiar adult garb. Luzon individuals do not differ from Zebu examples.

24. *LALAGE DOMINICA* (76).

[Cebu, male, April. Iris brown.]

25. *DICRURUS MIRABILIS* (81).

[Cebu, male, April. Iris crimson; bill and feet black.]

The dimensions of the single example obtained are somewhat smaller than those of typical individuals. Not hitherto recorded from Zebu.

26. *LEUCOCERCA NIGRITORQUIS* (83).

[Cebu, male and female, March. Iris brown, bill and legs black.]

27. *CYORNIS PHILIPPINENSIS*.

"*Cyornis banyumas* (Horsf.)," Walden, *l. c.* no. 84 (*nec* Horsf.).
Cyornis philippinensis, Sharpe, Tr. L. S. ser. 2, Zool. i. p. 325.

[Cebu, male, April.]

The blue plumage of this single example is not of quite so dark a shade as that of Dr. B. Meyer's specimen (*l. c.*). Yet it is perceptibly darker than that of Luzon and Panay individuals. The length of the wings and tail is also slightly greater; but without a larger series for comparison it is best to retain it under the title cited.

28. *HYPOTHYMIS AZUREA* (85).29. *HIRUNDO JAVANICA*.

Hirundo javanica, Sparrman, Mus. Carls. t. 100.

[Cebu, male, April.]

New to the Philippines.

30. *BRODERIPUS ACORRHYNCHUS* (90).

Oriolus acrorhynchus, Vigors, P. Z. S. 1831, p. 97.

Oriolus chinensis, Linn., apud Sharpe, B. M. Cat. Birds, iii. p. 203. no. 12, nec Linn.

Mr. Sharpe has recently (*l. c.*) adopted the Linnean title *chinensis* for this purely Philippine species, for the reason that that title is "undoubtedly referable to the Oriole of the Philippines" (*l. c.* p. 197, *note*). Linnæus gave the name to Brisson's *Loriot de la Cochinchine* (Orn. ii. p. 326); and Brisson states that the subjects of his description were brought to Réaumur by Poivre from Cochin China. Judging from the description, also, Brisson's bird could not have belonged to the Philippine species; for he describes it as possessing a yellow alar speculum, which the continental form has, and the Philippine bird lacks. After saying that the wing-feathers are black, Brisson adds "quelques-unes des moyennes sont terminées par une petite tache jaunâtre." It is therefore not necessary to adopt so inappropriate a title as *chinensis* for the Philippine Oriole; and the name *O. diffusus*, Sharpe (*l. c.*), for the continental species must be suppressed (*cf.* Walden, Blyth, B. Burma, no. 483). M. Oustalet (Ois. de la Chine, p. 132) correctly identified the Chinese *Broderipus* with the Brissonian species, and adopted the Brissonian title of *cochinsinensis*, but afterwards somewhat hastily accepted Mr. Sharpe's view, and placed that title in the list of errata and addenda.

31. *ORIOLOUS ASSIMILIS*, n. s. (Plate LXXVI.)

[Cebu, male, March. Iris crimson, bill dull burnt-sienna brown, legs dark lead-grey, nails black.]

Male. Above and under tail-coverts dark greenish yellow; space before the eye, cheeks, ear-coverts, chin, throat, and breast dark grey, the breast being tinged with greenish yellow; abdomen, flanks, and ventral region grey or white, with broad almost black mesial bands; axillaries, under-surface of quills, and under wing-coverts grey; all the quills and major coverts above very dark grey, almost black, each washed with a pale grey on the outer webs, the wing, when closed, appearing dark grey. Tertiaries nearest the body distinctly tinged with greenish yellow. Minor wing-coverts like the back. All the rectrices above dark iron-grey, almost black. Outer pair with a pure yellow small terminal spot or mark at the apex of the inner web; all the others with slight indications of a terminal yellow margin.

Wing 4·87, tail 4·12, tarsus 0·88, culmen 1·25.

A representative form of *O. steerii*, ex Negros. Mr. Sharpe, who

has kindly compared it with the type of *O. steerii* in the British Museum, considers "that it is distinct from the Negros Oriole, and that it differs in having the greater wing-coverts grey and not yellow, and in having the spots on the tail-feathers so very small; the grey on the breast comes much lower down."

32. *MEGALURUS RUFICEPS*.

Megalurus ruficeps, Tweeddale, Ann. & Mag. N. H. ser. 4, vol. xx. p. 94.

[Cebu, male, March. Iris dull burnt-sienna brown.]

Identical with the Luzon types. The sexes do not appear to differ in dimensions.

33. *HYPSSIPETES PHILIPPENSIS* (102).

[Cebu, male and female, March. Iris burnt-sienna brown, bill brownish black, legs brown.]

34. *PHYLLORNIS FLAVIPENNIS*, n. s. (Plate LXXVII. fig. 1.)

[Cebu, male, April. Iris hazel, bill lead-grey, yellowish along the margin, legs and feet greenish leaden.]

The colours of the soft parts of the female are noted by Mr. Everett to be like those of the male, excepting that the yellowish commissure is not mentioned.

Male. Grass-green above, pale verditer-green underneath. Lores, chin, throat, and thigh-coverts yellowish green. Primaries brown on their inner webs, tinged with dark green along the shaft; outer webs of first three primaries green tinged with yellow; lower half of the outer webs of remaining primaries margined with yellow. Inner margin of all the quills, seen from below, yellow. The female like the male, but the colouring not altogether so bright.

Wing 3.75, tail 3.50, tarsus 0.80, culmen 0.87.

If the four examples sent by Mr. Everett have the sex correctly noted (of which there is little doubt), and if the males are in mature plumage (and there are no indications of immaturity), the sexes in this species do not essentially differ. There is no trace of any blue in the plumage of the males.

35. *PRATINCOLA CAPRATA* (104).

[Cebu, male, March and April. Iris brown, bill and legs black.]

36. *COPSYCHUS MINDANENSIS* (106).

37. *PHYLLOSCOPUS BOREALIS*.

Phylloperneuste borealis, Blasius, Naumannia, 1858, p. 313.

Phylloscopus magnirostris, Blyth, Walden, l. c. no. 109.

[Cebu, male and female, April.]

38. *CALOBATES MELANOPE* (115).

[Cebu, male and female, March.]

39. *CORYDALLA LUGUBRIS* (117).

[Cebu, male, April. Iris brown, maxilla brown, mandible pale ochreous, legs and feet light ochreous.]

40. *PARUS ELEGANS* (118).

[Cebu, male, April. Iris brown, bill dark, legs and feet lead-blue.]

Not separable from Luzon examples.

41. *DENDROPHILA ÆNOCHLAMYS*.

Dendrophila ænochlamys, Sharpe, Tr. L. S. ser. 2, Zool. i. p. 338 t. liii. f. 2 (1876).

[Cebu, male and female, April. Iris orange-yellow, bill greenish yellow].

The male example has all the rectrices broadly tipped with the vinaceous colour of the breast. In the female the middle pair are throughout blue, while the laterals only exhibit a vinaceous tinge at their apices.

42. *ZOSTEROPS EVERETTI*, n. sp.

[Cebu, male and female, April. Iris light yellow-brown, maxilla blackish, mandible and legs pale grey].

Male and female.—Above oil-green, darker than in *Z. palpebrosus*, and much darker than in *Z. meyeri* of Luzon. Narrow frontal band and lores, chin, throat, under tail-coverts, and shoulder-edge bright yellow. Below the eye a distinct black mark. Breast and flanks pale but decided iron-grey. Mesial band of abdomen, extending to vent, bright yellow. Rectrices above pale brown washed with oil-green.

Wings 2·06, tail 1·87, tarsus 0·70, culmen 0·50.

This species, closely allied to *Z. lateralis*, is to be distinguished by its green rectrices.

43. *PRIONOCHILUS QUADRICOLOR*, n. sp. (Plate LXXVII. fig. 2.)

[Cebu, April. Iris dark brown; legs, bill, and feet glossy black.]

The sex is not stated on the label.

Chin, throat, cheeks, sides of neck, breast, flanks, under wing-coverts, axillaries, abdomen and under tail-coverts pale greyish silky white, the chin, cheeks, and axillaries being almost pure white. Forehead, sides of head, vertex, and occiput, descending low down the nape, dull black. Interscapulars and back black, broadly tipped with cinnabar-red. Uropygium black with olive-yellow tips to the feathers. Upper tail-coverts, rectrices, and wing-coverts rather glossy bluish black. Quills dark blackish brown.

Wings 2·12, tail 1·25, tarsus 0·50, culmen 0·37.

This is one of the most important additions made by Mr. Everett to the Philippine fauna, adding, as it does, one of the hitherto missing characteristic Malayan genera; for, although Mr. Sharpe (*t. c.*) in-

cludes *Prionochilus* amongst the Philippine genera, it is only on the strength of a Palawan example of the genus.

44. *DICÆUM RUBRIVENTRE* (120 partim).

Pipra papuensis, Gm. S. N. i. p. 1004.

Dicæum rubriventer, Lesson, Tr. p. 303.

Dicæum retrocinctum, female, Gould, B. As. xxvii. t.—; cf. Salvad. Ann. Mus. Civ. Gen. viii. p. 509.

[Cebu, male, April.]

This example, in the plumage of *D. retrocinctum*, female, apud Gould, is also marked a male, like the one obtained in Cebu by Meyer (*l. c.*) and by Mr. Everett (*antea*, p. 698) in Luzon. Count Salvadori's view (*l. c.*) that it is not the female of *D. retrocinctum*, Gould, but a distinct species, is therefore confirmed. I am further inclined to the opinion that *D. retrocinctum*, if from either island, is from Mindanao and not from Luzon, and that Sonnerat obtained the type of *P. papuensis* in Luzon and not in Mindanao.

45. *DICÆUM DORSALE*.

Dicæum dorsale, Sharpe, Tr. L. S. ser. 2, Zool. i. p. 340.

[Cebu, male, April. Iris brown.]

46. *ARACHNECHTHRA JUGULARIS* (123).

[Cebu, male. Iris brown, bill and legs black.]

47. *ÆTHOPYGA MAGNIFICA*.

Æthopyga magnifica, Sharpe, 'Nature,' August 1876, p. 297, "Negros;" Tr. L. S. ser. 2, Zool. i. p. 342; Shelley, Cinnnyridæ, pt. iii. t.

[Cebu, male, April. Iris brown, bill and legs very dark brown, the mandible dark brown.]

48. *ANTHOTHREPTES CHLOROGASTRA* ?

Anthreptes chlorogastra, Sharpe, Tr. L. S. ser. 2, Zool. i. p. 342.

[Cebu, male, April.]

A single example of the genus was obtained by Mr. Everett; but as it represents a young male before it has assumed its metallic plumage, it is impossible to identify it with any certainty. One or two violet scapulars are present; and one of the occipital feathers is also violet. In *A. chlorogastra* the head is said to be metallic green.

49. *CORVUS PHILIPPINUS* (125).

[Cebu, male, March. Iris brown, bill and legs black.]

50. *CALORNIS PANAYENSIS* (128).

[Cebu, male and female, April. Iris vermilion-red, bill and feet black.]

51. *SARCOPS CALVUS* (129).

[Cebu, male, April. Iris brown, bare skin dull carmine, bill and legs black.]

52. *OXYCERCA EVERETTI*.

Oxyerca everetti, Tweeddale, Ann. & Mag. N. Hist. ser. 4, vol. xx. p. 96.

[Cebu, male, March. Iris brown, bill black, mandible grey, legs dark grey.]

Not separable from Luzon examples. Sexes alike.

53. *MUNIA JAGORI* (132).

[Cebu, male, March. Iris brown, bill pale grey, legs dark grey.]

In Mr. Everett's examples (male and female) the black mesial band is not confluent with the black of the breast. The species is very similar to *M. rubrinigra*, but has the black on the abdomen more fully developed.

54. *OSMOTRERON VERNANS* (135).

[Cebu, male, April. Iris, inner ring light blue, outer ring light ochreous; bill lead-grey, cere green, feet carmine, nails grey.]

55. *OSMOTRERON AXILLARIS* (136).

[Cebu, male, April. Iris light blue-green. *♂*. Female. Iris blue-green; bill lead-grey, base dark-red; feet greenish grey, nails grey.]

In the adult female the cap is pure grey as in male. In the younger female the crown is dingy green.

56. *RAMPHICULUS OCCIPITALIS* (138).

[Cebu, male and female, April. Iris, pale reddish-brown (female light yellow-brown). Basal half of bill vermilion, apical half yellow; feet carmine, nails grey tinged yellow.]

Neither in plumage nor dimensions do the sexes differ. Zebu examples cannot be separated from Luzon individuals.

57. *PHABOTRERON NIGRORUM*.

Phabotreron nigrorum, Sharpe, Tr. L. S. ser. 2, Zool. i. p. 346.

Phabotreron leucotis (Temm.), Walden and Layard, Ibis, 1872, p. 104, ex Negros.

[Cebu, male and female, April. Iris brown, bill black, legs and feet bright carmine, nails grey.]

The characters whereby Mr. Sharpe separated the Negros form of this genus from the nearly allied *P. leucotis* of Luzon belong also to the Guimaras and the Zebu birds.

58. *CARPOPHAGA ÆNEA* (141).

[Cebu, male, March. Iris and orbital ring bright crimson, bill lead-grey, feet dull purplish-crimson.]

A series of four Cebu individuals cannot be differentiated from Luzon and Negros specimens.

59. *TURTUR DUSSUMIERI* (147).60. *CHALCOPHAPS INDICA* (150).

[Cebu, male and female, April. Iris brown, bill orange-red, legs dark red, feet dull carmine.]

61. *TURNIX NIGRESCENS*, n. sp.

[Cebu, female, April. Iris yellowish white, bill chrome-yellow, legs chrome-yellow, feet tinged with green.]

While *T. fasciata* of Luzon chiefly differs from *T. pugnax*, ex Java, in its smaller dimensions and its broad uniform rufous nape, this Zebu bird somewhat exceeds *T. pugnax* in size, and is readily differentiated by the ground-colour of the crown, back, and uropygium being blackish brown instead of rufous. Like *T. fasciata* it also possesses a broad rufous nuchal collar.

	Dimensions.			
	Wing.	Culmen.	Tarsus.	
	in.	in.	in.	
<i>T. pugnax</i> ♀	3.37	0.68	1.06	} ex Java. Throat black.
" ♂	3.06	0.62	0.95	
<i>T. fasciata</i> ♀	3.00	0.62	0.83	} ex Luzon. "
" ♂	2.86	0.50	0.75	
<i>T. nigrescens</i> ♀	3.50	0.75	1.12	} ex Zebu. "
" ♂	3.12	0.63	0.95	

62. *MEGAPODIUS PUSILLUS*, n. sp. (Plate LXXVIII.)

[Cebu, male, March. Iris dark hazel, bill dark brown, legs very dark brown, nearly black.]

The upper surface rich ruddy yellowish (almost golden) brown. Uropygium and upper tail-coverts and rectrices brown. Chin and throat dirty yellowish brown, the feathers being light grey at their insertion. Neck and upper breast slate-grey tipped with ruddy brown. Lower breast, abdomen, and flanks slate-grey, but faintly washed with ruddy brown. Ventral region paler grey tinged with ochreous brown. Thigh-coverts distinct ruddy, almost rusty, brown. Under tail-coverts dull ashy brown. Primaries uniform brown. Secondaries margined externally with the hue of the back. Tertiaries and wing-coverts like the back. Sides of head and forehead slightly paler than the head.

Wing 6.25, tarsus 1.70, middle toe without claw 1, culmen 0.64.

This small Megapode has the ophthalmic region, throat, and neck densely clothed, and belongs to a type different from *M. cumingi*.

Mr. Sharpe has lately (P. Z. S. 1875, p. 111) separated the Bornean Megapode from the then only known Philippine species, and given the title of *M. lowii* to the Bornean (Labuan) species. That

the Philippine and Bornean naked-faced Megapodes differ specifically seems to be established; but it would appear that the Philippine and not the Bornean species requires a new title. Mr. Sharpe proceeds on the assumption that Mr. Dillwyn described from and bestowed the title of *M. cumingi* (P. Z. S. 1851, p. 119, t. xxxix.) on Cuming's Philippine (Manila?) examples. But neither the context nor the descriptions and dimensions, the last on Mr. Sharpe's own showing, appear to support his conclusion. Mr. Dillwyn (*l. c.*) considered the Labuan Megapode to belong to the same species as that sent by Mr. Cuming to the British Museum from the Philippines; and the point of difficulty is whether Mr. Dillwyn described (*l. c.*) his *M. cumingi* from Motley's Bornean examples or from Cuming's Philippine specimens. Mr. Dillwyn described his type as being "blackish slate-colour" below, and he figured the bird (*l. c.*) dark (blackish) slate-colour below. Mr. Sharpe, when differentiating the Bornean from the Philippine Megapode, says (*l. c.*) that the Labuan specimens sent to the British Museum by Mr. Lowe are smaller and darker than the Philippine birds, especially on the breast, which is deep plumbeous grey, whereas in the Philippine bird the under surface is brownish washed with grey. If we compare the dimensions given by Mr. Dillwyn of his type of *M. cumingi* with those given by Mr. Sharpe (*l. c.*) of his *M. lowii* (ex Labuan) and of the Philippine bird, it will be found that the principal dimensions of Mr. Dillwyn's type of *M. cumingi* and of Mr. Sharpe's type of *M. lowii* are essentially the same, while the dimensions of the Philippine Megapodes are sensibly larger.

	Total length.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.
<i>M. cumingi</i> , Dillwyn (<i>l. c.</i>)	14.0	8.6	3.0	2.1
<i>M. lowii</i> , Sharpe (<i>l. c.</i>), ex Labuan ...	14.5	8.1	3.1	2.4
<i>M. cumingii</i> , Dillwyn apud Sharpe (<i>l. c.</i>), ex Philippines	16.0	10.0	3.7	2.5

Mr. Sharpe states that the Labuan birds differ from the Philippine in being smaller, and he admits that the plate (*l. c.*) of *M. cumingi* represents the Bornean Megapode, and yet he assumes that Mr. Dillwyn described from Cuming's Philippine individuals. As I first drew attention (T. Z. S. ix. p. 225) to the desirability of recomparing the Philippine Megapode with the Bornean *M. cumingi*, and as Mr. Sharpe after making the comparison asserts that they differ specifically, I propose the title of *Megapodius dillwyni* for the Philippine species obtained by Cuming¹.

¹ Since I arrived at this conclusion Mr. Dillwyn has kindly written to me to say, respecting the *M. cumingi* described by him in the P. Z. S. (and also in his Nat. Hist. Labuan), the description was from a specimen which he received from Motley from Labuan. Wolf's figure was taken from the same specimen.

63. *CHARADRIUS FULVUS* (159).

[Cebu, male and female, April.]

Two of the male examples are in almost full breeding-plumage, a few only of the chin- and throat-feathers not being black.

64. *GALLINULA CHLOROPUS* (169).

[Cebu, female, juv., March. Iris crimson, bill dirty orange-yellow, brown at the base, legs grass-green, nails brown. *b.* Cebu, female, April. Iris crimson, bill light brown, apical portion light greenish, legs green.]

65. *ORTYGOMETRA CINEREA* (172).

[Cebu, male, March. Iris crimson, bill greenish brown, legs dull greenish, nails brown. *b.* Cebu, female, March. Iris crimson, maxilla greenish brown, mandible green, legs dull greenish, nails brown.]

66. *RALLINA EURYZONOIDES*.

The Rail, Brown, Illustr. p. 94, t. xxxvii., "Ceylon" (1776).

Gallinula eurizonoides, Lafresn. Rev. Zool. 1845, p. 368.

Rallus zeylanicus, Gm. S. N. i. p. 716. no. 17; Jerdon, B. Ind. iii. p. 725, nec Gm.

Rallus zeylanicus, Gm., *l. c.* auctt. recent. nec Gm.

[Cebu, male, April. Iris brilliant red. *b.* Cebu, female, April. Iris bright brick-red, bill blackish, the base tinged light green, tip greyish, legs dull greenish leaden, feet dark lead-grey, nails grey.]

The two examples obtained by Mr. Everett do not quite agree with Ceylon and Continental-Indian individuals, inasmuch as the dark banding below appears much blacker, broader, and more decided, and the dorsal colouring is browner. Still, since it is impossible to select any marked characteristic difference, and as this Rail is probably a migrant, as in Ceylon, I refer these Philippine birds to the Indian species. Mr. Blyth was of opinion that the race found in the Philippines was barely distinguishable (Jerd. *l. c.*).

Brown (*l. c.*) described and figured, under the title of *The Rail*, this species from a Ceylonese example obtained by Governor Loten. At p. 96 he also described, and on plate xxxviii. he figured, a distinct bird from the same source under the title of *Rail*. Gmelin (*l. c.*) copied Brown's description of his *Rail*, and bestowed on it the title of *Rallus zeylanicus*. But Gmelin, while correctly quoting p. 96 of the Illustrations, incorrectly referred to plate xxxvii., on which is depicted Brown's *The Rail*. On Brown's description of *The Rail* Gmelin founded no title; but when incorporating the Linnæan species *Rallus capensis* (Mantissa, p. 525) in his edition of the 'Systema' (*l. c.* No. 11) and more or less transcribing the Linnæan diagnosis, he followed Latham (Synop. iii. pt. i. p. 234. no. 8) and referred the Linnæan bird to the one described by Brown at p. 94 as well as to the one figured by Brown on plate xxxviii. Latham made the identification with a note of interrogation. Gmelin in both cases associated the wrong plate with the pages containing Brown's descrip-

tive remarks, and called both species *Rail*. As Gmelin's diagnosis of his *Rallus zeylanicus* does not apply to the ferruginous-breasted Rail of Ceylon, *The Rail* of Brown, we must adopt the next title, that of Lafresnaye. I cannot with certainty identify the bird described and figured by Brown under his title of Rail (*Rallus zeylanicus*, Gm.); but it is apparently a gallinaceous bird—possibly *Galloperdix spadiceus* (Gm.).

67. AMAURORNIS OLIVACEA (176).

[Cebu, male, March. Iris crimson, bill dark green, paler at tip, legs yellow-brown. *b.* Cebu, female, March. Iris crimson, bill grass-green, legs and feet brownish dull yellow.]

68. HYPOTÆNIDIA TORQUATA (177).

[Cebu, male and female, March. Iris crimson, feet and nails lead-grey, bill black.]

The series sent consists of thirteen examples of both sexes, some being from Luzon. In plumage the males do not differ from the females. Every variety occurs in the colouring and extent of the pectoral band, which is dark pure maroon in the full plumage.

69. HYPOTÆNIDIA STRIATA (179).

Hypotænidia obscuriora, Hume, Str. F. 1874 (January), p. 302, "Andamans."

Hypotænidia ferrea, Walden, Ibis, 1874, April, p. 147, "Andamans."

[Cebu, male, March. Iris burnt-sienna brown, bill blackish brown, base carmine, legs greyish brown. *b.* Cebu, male, April. Iris Indian red; bill purplish brown, base dull crimson; legs brown.]

These Zebu specimens may be regarded as being typical; and from them Andaman and Rangoon examples cannot be separated; consequently the titles founded on the Andaman race must fall. A recomparison made with Continental-Indian and Malaccan examples does not support my former (*l. c.*) opinion that the Andaman birds specifically differ from Indian and Malaccan; otherwise the Indian race would require a new title.

70. TRINGOIDES HYPOLEUCUS (183).

[Cebu, male, April. Iris brown, bill dark brown, legs light greenish-grey, nails black.]

71. TOTANUS INCANUS.

Scolopax incanus, Gm. S. N. i. p. 658.

[Cebu, female, April. Iris dark brown, bill very dark brown, legs ochreous yellow, nails black.]

Wings 6·50. Breeding-dress.

72. GALLINAGO MEGALA (188).

[Cebu, female, April.]

73. BUTORIDES JAVANICA (197).

[Cebu, March. Iris golden yellow, orbital and loreal regions light green, bill black, base of mandible yellowish, legs and feet dull green, nails grey-black.]

74. NYCTICORAX MANILLENSIS (198).

[Zebu, male, May. Iris golden-yellow, bill brown, mandible dirty yellow, legs light greenish-yellow, nails grey.]

The male of which the soft parts are described above is a young bird. Above the plumage is rich dark brown, each feather centred for its entire length (as on the neck) or for its terminal half (as on the back) with clear ferruginous. Underneath the plumage has the same character; but the ferruginous colour is diluted, and on the breast tawny. The quills are of the same rich dark chestnut-colour that prevails in the adult. Chin and throat pure white. The crown of the head is like the neck, and not black as in the adult. Many of the frontal and coronal feathers have prolonged, twisted or partly curled terminal naked shafts of a yellowish albescent colour and over half an inch in length. This occurs in two specimens.

An example (without a label) in almost full dress, has the forehead, crown, and occipital crest black. The remainder of the upper plumage and the exposed surfaces of the wings are rich dark chestnut-rufous, darkest on the interscapular region. The chin and throat pure white, with a few feathers tipped and centred brown. The sides of the head, the sides and front of the neck, upper breast, and flanks pale rufous tawny with broad ruddy-brown margins. Lower breast and abdomen white and tawny-white with the brown margins narrower. Under tail-coverts white, some blotched with creamy rufous. Long axillaries pale pure rufous. Carpal edge pure white. Culmen 2·87 inches, tarsus 3·75, wing 12·75.

The long, pendent, white nuchal plumes are absent, the black tips of which are said to be one of the characters which differentiate *N. manillensis* from *N. caledonicus*. The differences between the two species are otherwise well marked; but Professor Schlegel's opinion that *N. manillensis* = *N. crassirostris*, ex Bonin Ins., requires confirmation.

The bill of this Philippine example is thicker than in *N. caledonicus*, (ad. ex Port Albany), measuring in altitude 1 inch as against 0·75.

75. DENDROCYGNA VAGANS (203).

[Cebu, male, March. Iris dark brown, bill shining black, legs and feet dark slate-grey. b. Cebu, male, April.]

The example shot in March is in almost full plumage, the secondaries being well developed. Most of the breast-feathers have one or two pairs of brown spots. The second example, shot in April, is of smaller dimensions, the secondaries shortened, the breast-plumage uniform.

2. On a Collection of Birds from Eua, Friendly Islands.
By Dr. OTTO FINSCH, C.M.Z.S., Director of the Museum
of Natural History of Bremen.

[Received Sept. 26, 1877.]

The Island Eua (Eooa, Eoa, Eaowe or Eaoowe), belonging to the Tonga or Friendly group, situated to the south-east of the main island Tongatabu, is much smaller than the latter, but, instead of being flat, shows a more mountainous appearance, and rises to a height of about 600 feet above the level of the sea.

When writing our 'Ornithology of Central Polynesia,' ten years ago, Dr. Hartlaub and I were, as regards the birds of the Tonga group, obliged nearly to confine ourselves to what Forster had written on the subject, Tonga birds being at that time of the greatest rarity in collections. The total number of species then known of Tonga birds was 33, of which only four were known from Eua (viz. *Platyercus tabuensis*, *Ptilotis carunculata*, *Carpophaga pacifica*, and *Gygis alba*). Since that time we have had the pleasure of publishing a welcome contribution to our knowledge of the Tonga birds, based upon the collections of Dr. Gräffe¹, which reached us through the Museum Godeffroy, of Hamburg, in 1869. A very interesting account of the habits of Tonga birds was shortly after published by Dr. Gräffe² himself, which paper may be considered a valuable continuation of our memoirs. Dr. Gräffe noticed, as observed by himself, 26 species (of which 18 were collected by him and examined by us), thus adding 5 species to the avifauna, among which one proved to be new (*Colluricincla heinei*, nob.), and raising the total to 38. Since then Mr. E. L. Layard has visited the Tonga group and has published a useful contribution³, which adds, as observed by him, 7 species more (*Limos uropygialis*, *Streptopus interpres*, *Sterna melanauchen*, *St. panaya*, *Anous leucocapillus*, *Phaëton candidus*, and *Tachypetes aquila*), and raises the total of alleged species to 45. But as some of these occurrences rest on antiquated statements, not yet confirmed, the total number known with certainty from the whole group remains still 37.

I have now to make a further addition to our knowledge of this avifauna. Mr. F. Hübner, at the charge of the Museum Godeffroy in Hamburg, has lately again visited the Tongas, and has sent over a collection made on the island of Eua. His exertions have raised the number of birds known to occur on this island from 4 to 24.

¹ Dr. O. Finsch and Dr. G. Hartlaub "On a small Collection of Birds from the Tonga Islands," in P. Z. S. 1869, pp. 544-548, and Dr. O. Finsch u. Dr. G. Hartlaub "Zur Ornithologie der Tonga-Inseln," in Cabanis's Journal für Ornithologie, 1870, pp. 119-140, Taf. iv.

² Dr. Eduard Gräffe, "Ornithologische Mittheilungen aus Central-Polynesien. I. Die Vogelwelt der Tonga-Inseln," in Cabanis's Journal für Ornithologie, 1870, pp. 401-420.

³ E. L. Layard, "Notes on the Birds of the Navigators' and Friendly Islands, with some Additions to the Ornithology of Fiji," in P. Z. S. 1876, pp. 490-506.

Of these, examples of 21 have been inspected by me; two (*Charradrius fulvus* and *Limosa uropygialis*) I included on Mr. Layard's authority. Only one species, the Parrot *Platycercus tabuensis*, seems to be peculiar to the island.

1. STRIX DELICATULA.

Strix delicatula, Gould; Finsch & Hartl. P. Z. S. 1869, p. 545, et Journ. f. Ornith. 1870, p. 122.

Native name *Lulu* (Hübner, Gräffe).

One female from Eua, exactly resembling specimens from Feejee. "Contents of stomach, hairs of bats" (Hübner).

Mr. Hübner observed this species also in the Iapai group, north of Tongataboo.

2. PLATYCERCUS TABUENSIS.

Platycercus tabuensis (Gm.); Finsch, Papag. ii. p. 231; F. & H. Journ. f. Orn. 1870, p. 123; Layard, P. Z. S. 1876, p. 500.

Native name *Kaka* (Hübner, Gräffe).

Nine specimens (collected in August 1876), all from Eua.

The absence of red tips to the feathers of the lower rump or upper row of upper tail-coverts, as I have already remarked, is not a character of specific value in this bird. In the series before me there is only a single specimen which has the uropygium uniform green; the others all show more or less red tips to the feathers, which in some are broad and very conspicuous; in two, also, the lesser and largest scapula-coverts have purplish-red tips. The extent and width of the blue neck-collar also varies individually; generally it is broad and well defined, but in some examples is so narrow and obscure that it nearly disappears.

According to Dr. Gräffe this species is confined to the island Eua; but Mr. Layard suggests that the bird has been introduced there from Fiji.

Mr. F. Hübner writes on this species (*in litt.*):—"Notwithstanding my utmost endeavours, I was not able to obtain certain information with respect to the breeding-time of the 'Kaka.' All the holes in the trees which I inspected were uninhabited; and even the natives could not tell me where eggs were to be found. But as I obtained young birds in August I am inclined to believe that June and July are the season of incubation, although females shot by me in these months did not show any development of the ovaries. In habits the Kaka does not differ from other Parrots; it feeds on berries and fruits. The male and female are alike, except that the latter has a weaker bill. The young ones are obscure in colour, but they soon get the bright dress of the old; the iris of the latter is orange, in the young grey-brown."

In my work on the Parrots I gave, on the authority of Peale, also the Fiji Islands as the locality for this species, considering *Pl. atrogularis*, Peale, and *Pl. anna*, Bourj., to be identical. This I now believe was a mistake, as also my statement that Peale had

erroneously given the Fijis as a locality. It is true that all the specimens I have seen from the islands of Viti-Levu, Vanua-Levu, Loma-Loma, and Kandavu belong to the much more brightly coloured *P. splendens*; but through Mr. Layard we now learn that the island of Taviuni possesses another bird which shows the same dark purplish-red colour (*atro-purpureus*) as *P. tabuensis*. A specimen from Taviuni before me differs, not only in the smaller size, but also in the total absence of the blue neck-collar, of which not even the slightest trace is visible. But I hesitate to declare this difference of specific value, as Cassin mentions in *P. atrogularis* a broad, in *P. annæ* a narrow blue collar; and as both these birds were collected on the Fijis, although without exact locality, they evidently belong to one and the same species.

The dimensions of 20 specimens of *P. tabuensis* from Eua are as follows,

Wings.		Tail.	
in.	lin.	in.	lin.
8	3	9	8

whereas in the Taviuni bird the wings measure only 7" 8"', the tail 6" 8'''.

If the smaller size of the Fiji bird should turn out to be constant, it ought to be regarded as a different species, to which belong the three dark races pointed out by Mr. Layard¹ as differing in the extent of the blue collar. The synonymy of this Fiji form of *P. tabuensis* will be as follows:—

PLATYCERCUS ANNÆ.

Conurus anna, Bourj. Perr. t. 38.

? *Platycercus tabuensis*, Jard. & Selb. Ill. of Ornith. ii. pl. lxxiv. (fig. pess., without blue collar).

Pl. atrogularis, Peale, Unit.-St. Expl. Exped. (1848) p. 129, pl. xxxv.; Hartl. Wiegman. Arch. 1852, p. 106.

Aprosmictus tabuensis et *A. anna*, Cass. Un.-St. Expl. Exp. 2nd edit. (1858) pp. 234, 236.

Pl. anna, Gray, List Psitt. p. 11.

Pl. atrigularis, Scl. P. Z. S. 1864, p. 158.

Pl. tabuensis, Gough, P. Z. S. 1849, p. 14; Finsch, Mon. Papag. ii. p. 231 (upper part).

Pl. taviunensis, Layard, Ibis, 1876, p. 141, et *Pl. splendens*, second race (from Mathuata), third race (from Koro), and fourth race (*taviunensis*, from Taviuni), *ib.* p. 143.

3. DOMICELLA FRINGILLACEA.

Domicella fringillacea (Gm.); Finsch, Papag. ii. 747; Layard, P. Z. S. 1876, p. 501.

Native name *Hega* (Hübner, Gräffe).

Three specimens from Eua. Sexes alike. No difference is observable in specimens from the Navigators' and Wallis Islands. One specimen shows the green front stained with bluish.

¹ Ibis, 1876, p. 141.

This species has been observed also by Mr. Hübner in the Hapai group and on Vavao.

4. EUDYNAMIS TAITIENSIS.

Eudynamis taitiensis (Sparrm.).

Native names *Kaliva* (Hübner), *Haleva* (Gräffe).

One male in the spotted dress of the young bird from Eua (August 1876). This is the first specimen of this bird I have examined from the Friendly group; its occurrence there has been stated already by G. R. Gray and Dr. Gräffe.

5. HALCYON SACRA (Gm.).

Native name *Gikota* (Hübner, Gräffe).

Five specimens. The remarks given, Journ. f. Ornith. 1870, p. 124, are also applicable to the series before me. Generally the specimens with a tawny-coloured eye-stripe (running round the nape) show also narrow edgings of the same colour on the upper wing-coverts; but these are sometimes also present in white-eyed-striped specimens.

This species occurs also in the Hapai group (*Hübner*, in litt.).

6. PTILOTTIS CARUNCULATA.

Ptilotis carunculata (Gm.); F. & Hartl. P. Z. S. 1869, p. 545; iid. Journ. f. Orn. 1870, p. 125; Gräffe, ib. p. 404 (habits); Layard, P. Z. S. 1876, pp. 491 et 501.

Native names *Fuleheu* (Hübner, Gräffe); *Fule-haio* (Layard).

Three specimens from Eua, agreeing exactly with others from the Navigators' and Viti. Of the latter I have before me two specimens from Matuka, collected during the 'Challenger' Expedition. (See above, p. 732.)

7. COLLURICINCLA HEINEI.

Myiolestes heinei, F. & H., P. Z. S. 1869, p. 546, et Journ. f. Ornith. 1870, p. 126, t. iv.

Native name *Fuiva* (Hübner, Gräffe).

Two specimens from Eua, exactly like those from Tongatabu and Vavao.

"This species is common and lives in the brush" (Hübner).

As it appears that the genus *Myiolestes* of Cabanis (Mus. Hein. p. 67) was based on *Muscicapa obscura*, Horsf. (= *hirundinacea*, Temm. Pl. Col. 119), from Java, a bird which is quite different generically, this Polynesian bird may be placed in the genus *Colluricincla*, from which it, in my opinion, does not differ generically.

8. LALAGE MACULOSA (Peale); Finsch, P. Z. S. 1877, p. 724.

L. terat, Layard, P. Z. S. 1876, p. 502.

Native names *Gikiviu* (Hübner); *Singiviu* (Layard).

Two specimens from Eua. One of them, nearly in full plumage,

has narrow rusty borders on the feathers of the vertex, also on those of the back; but these are more obsolete; the middle wing-coverts are white, tinged with pale rusty and with a black median streak. This is seen only on the right wing; on the left the white patch is nearly fully developed.

The second specimen is an interesting albino variety. All the parts which in the adult male are black are in this specimen pale tawny; the middle tail-feathers are brown, the rest of them pure white; bill and feet horn-colour.

9. *APLONIS TABUENSIS* (Gm.).

A. marginata, Gould; Cass. Expl. Exp. pl. 30. f. 1.

Lamprotornis fusca, Peale (part).

A. cassini, Gray (part).

Native name *Megi* (Hübner).

Two specimens, male and female (exactly alike), from Eua. Mr. Hübner found this species breeding in the hole of a tree. According to him it occurs also on the Hapai group.

In our 'Ornithology of Central Polynesia' (p. 103), and later (Journ. f. Ornith. 1870, p. 131), we have followed Peale in stating the *Aplonis* from the Tonga and Viti group to belong to one and the same species, *i. e.* *A. tabuensis* (Gm.). A close examination convinces me, however, that they are not identical, but of two distinct species. The true *A. tabuensis*, which seems to be confined to the Tonga group (Eua, Tongatabu), is generally darker; and the underparts are dirty brownish-grey, with obsolete whitish stripes, which are caused by the light-coloured shafts on the breast and vent.

The dimensions do not give distinctive characters, although the Viti birds generally seem to be smaller.

Al.		Caud.	
in.	lin.	in.	lin.
4	0	2	1
3	8	2	1

2 3 *tabuensis*.

2 3 *vitiensis*.

The Viti bird is generally lighter; the shafts of the feathers on the back and shoulders are whitish, and form very narrow striæ; the under surface is light brownish, streaked longitudinally with whitish, each feather being, along the shaft, broadly whitish, so that the white shaft itself remains inconspicuous, and does not form the narrow striation as in *A. tabuensis*.

The Viti bird, which must for the future be called *Aplonis vitiensis*, Layard¹, seems to be widely distributed on the Viti group; Ovalau (*Gräffe*), Vatu Lele (*Kleinschmidt*), Kandavu, Suva, Lomaloma, Taviuni (*Layard*).

Whether the *Aplonis* collected by Dr. Gräffe on the small island Uëa, Wallis group, belongs to this species or to *A. tabuensis*, I cannot say, not having seen specimens from that locality.

¹ Layard, P. Z. S. 1876, p. 502, = *A. tabuensis*, F. & Hartl. Ornith. Central-Polyn. p. 103, tab. x. f. 2, et Layard, P. Z. S. 1875, p. 435.

10. PTILINOPUS PORPHYRACEUS.

Ptilinopus porphyraceus (Forst.).

Native name *Kulukulu* (Hübner, Gräffe).

Two specimens from Eua; sexes alike.

On this peculiar species see Journ. f. Ornith. 1870, p. 131.
It occurs also in the Hapai group (*Hübner*, in litt.).

11. CARPOPHAGA PACIFICA.

Carpophaga pacifica (Gm.); Layard, P. Z. S. 1876, p. 503.

Native names *Lube* (Hübner), *Oroobe* (Layard).

Two males from Eua (August), exactly like specimens from the Navigators'.

The distinctive characters between this Central-Polynesian species and the more western *C. oceanica*, Less. (of the Carolines and Palau group), I have pointed out in Journ. Mus. Godeffroy, Heft viii. 1875, p. 26.

12. CHARADRIUS FULVUS.

Charadrius fulvus, Gm.; Layard, P. Z. S. 1876, p. 503.

Mr. Layard found this species common on Eua (in February).

13. TOTANUS INCANUS.

Actitis incana (Gm.); Layard, P. Z. S. 1876, p. 503.

Native name *Kiu* (Hübner).

One female in full summer dress, from Eua, shot in August.

14. LIMOSA UROPYGIALIS.

Limosa uropygialis, Gould; Layard, P. Z. S. 1876, p. 503.

Not in the collection, but mentioned by Mr. Layard from Eua.

15. ARDEA SACRA.

Ardea sacra, Gm.; Layard, P. Z. S. 1876, p. 503.

Native name *Motuka* (Hübner).

One slate-blue specimen from Eua (August).

16. ? ORTYGOMETRA TABUENSIS.

? *Ortygometra tabuensis* (Gml.).

Mr. Hübner remarks that the *Moho*, as this species is called by the natives, "although formerly common, may be considered nearly extinct on Eua." According to Mr. Layard, the *Moho* would be *Monarcha nigra* (Sparrm.), which is now extinct (P. Z. S. 1876, p. 501).

17. PORPHYRIO SAMOËNSIS, Peale.

P. vitiensis, F. & Hartl. Ornith. Central-Polyn. p. 172; Layard, P. Z. S. 1876, p. 503.

Native name *Kalai* (Hübner).

One female from Eua (August), which agrees in every respect

with specimens from the Navigators'. On the Central-Polynesian *Porphyrio* and its synonymy, *cf.* Finsch, Journ. für Ornith. 1872, p. 55.

18. ANAS SUPERCILIOSA.

Anas superciliosa, Linn.; Layard, P. Z. S. 1876, p. 503.

Native name *Toloa* (Hübner).

One female from Eua (August).

19. STERNA BERGII.

Sterna bergii, Licht.; *Gygis*, sp.? Gräffe, Journ. f. Orn. 1870, p. 403.

Native name *Tola* (Hübner), *Tala* (Gräffe).

One specimen from Eua (August).

Since the time of Latham the occurrence of this species on the Tonga group has not been recorded; but Mr. Layard also gives evidence of its occurrence (P. Z. S. 1876, p. 503).

Al.		Caud. (exter.)		Rostr.	Altit.	Tars.	Dig. med.
in.	lin.	in.	lin.	lin.	lin.	lin.	lin.
13	3	5	7	25	7	12½	12

20. ANOUS STOLIDUS.

Anous stolidus, L.

Native name *Gogo* (Hübner).

One old and two young specimens from Eua (August); the latter have the head and neck of a uniform sooty-brown; but the feathers on the forehead and vertex are acquiring greyish-white tips, so that there can be no doubt that still younger birds are uniform sooty-brown (*A. rousseaui*, Hartl.).

Al.		Caud.		Rostr.	
in.	lin.	in.	lin.	lin.	
10	6	6	0	20	Ad.
10	3	5	2	17	Jun.

According to Mr. Hübner this species breeds on the rocks on the east side of Eua.

21. ANOUS ALBIVITTATUS.

Procelsterna albivitta, Bp. C. R. p. 773 (1856); Gould, Handb. B. Austr. ii. p. 420.

Native name *Lefulefu* (Hübner).

Two specimens, precisely alike, from Eua (August).

This species, new to the avifauna of Tonga and Central Polynesia, differs very strikingly from *A. caeruleus*, Bennett (*A. parvulus*, Gould, *A. cinereus*, Neboux, nec Gould), in the pale grey colour of upper parts and the delicate silvery greyish white of its head, neck, and underparts.

Al.	Caud.	Rostr.	Tars.	Dig. med.
in. lin.	in. lin.	lin.	lin.	lin.
6 9	3 4	11½	11	11
7 2	3 9	11½	11	11

Mr. Howard Saunders, in his Monograph of the Sterninæ (P. Z. S. 1876, p. 671, confounds this very distinct bird with *A. cinereus*, Neboux, which latter must, according to his views, bear the name *A. cæruleus*, Bennett.

22. GYGIS ALBA.

Gygis alba (Sparrm.) ; Layard, P. Z. S. 1876, p. 504.

Native name *Ekiaki* (Hübner).

One specimen from Eua (August) in the very interesting stage of the young-plumaged bird after leaving the nest. It is white ; but the feathers on the upper parts have narrow edgings of pale rufous. This bird occurs also on Vavao (*Hübner*, in litt.). Mr. Layard found it common on Eua.

23. PHAËTON FLAVIROSTRIS.

Phaëton flavirostris, Brandt. ; Layard, P. Z. S. 1876, p. 504.

Native name *Tavaki* (Hübner et Layard).

One old female from Eua (August).

Dr. Gräffe notices as "Tavaki" *Ph. æthereus* from Tonga (Journ. f. Orn. 1870, pp. 403 et 411).

Mr. Layard got the egg of this species on Eua.

24. DYSPORUS SULA.

Dysporus sula (L.), F. & H. Ornith. Central-Polyn. p. 260.

Diomedea, sp. ? Gräffe, Journ. f. Ornith. 1870, pp. 403 et 411.

Native name *Gutulei* (Hübner).

One old male from Eua (August).

The "Gutulei" of natives, which Dr. Gräffe supposed to be a species of *Diomedea*, turns out to be the well-known Booby of the sailors.

3. On the Birds of the Island of Ponapé, Eastern Carolines.

By Dr. OTTO FINSCH, C.M.Z.S., Director of the Museum of Natural History of Bremen.

[Received September 26, 1877.]

The island of Ponapé, or Ascension (sometimes written on maps Bonaby, Bonabay, Bornaby, Bonabe, Bonibet, Hunnepet, Funopet, Falupet, Falupit, Fanopé, Puynipet) is the largest of the Seniavin group, which extends between 157° 54' and 158° 30' E. long., and 6° 43' and 7° 6' N. lat., and belongs to the Eastern Caroline archipelago. The island has a surface of about 7½ German miles, a circumference of about 13 German miles, and is inhabited by about 2000 natives. Having been visited only twice by the French expe-

dition of the 'Danaïde,' under command of Capt. Boramel, in 1840, and by the well-known 'Novara' Expedition, in 1858, we were acquainted with only eight species of birds inhabiting it till 1873, when Mr. J. Kubary, the well-known naturalist in charge of the Museum Godeffroy, at Hamburg, explored the island and stayed a year on it. Unfortunately his rich harvest was lost by the wreck of the Godeffroyian brig 'Alfred,' and, except a single skin (out of 200 which Mr. Kubary had collected), only the birds preserved in alcohol were saved. Upon this collection, containing examples of 20 species, I based my first paper on the birds of Ponapé¹. Since that time a second collection, consisting of well-prepared skins, made by Mr. J. Kubary, has reached me, which gives me a welcome occasion of correcting some statements in my former paper, caused by the bad conservation of some of the specimens in alcohol, and adds seven species more to the avifauna of this island. Among these a species of *Ptilonopus* proves to be new. The total species, therefore, known at present from Ponapé number 29, of which 7 are peculiar to the island.

1. *OTUS BRACHYOTUS* (L.), Finsch, Journ. Mus. Godeffr. Heft xii. p. 18.

In the first collection of Mr. Kubary.

2. *TRICHOGLOSSUS RUBIGINOSUS* (Bp.) ; Finsch, *l. c.* p. 18.

In Mr. Kubary's first collection.

3. *EUDYNAMIS TAITIENSIS* (Sparrm.) ; Finsch, *l. c.* p. 19.

One female.

4. *HALCYON CINNAMOMINUS*, Sws. ; Finsch, *l. c.* p. 20.

Of this species and its synonymy I treated in full in my last paper on Mr. Kubary's collection.

5. *COLLOCALIA VANICORENSIS* (Quoy & Gaim.) ; Finsch, *l. c.* p. 23.

In Mr. Kubary's first collection.

6. *MYZOMELA RUBRATRA* (Less.) ; Finsch, *l. c.* p. 26.

Sent already by Mr. Kubary.

7. *ZOSTEROPS PONAPENSIS*, Finsch, *l. c.* p. 27, t. 2. f. 1.

This peculiar species I received in Mr. Kubary's first collection.

8. *CALAMOHERPE SYRINX* (Kittl.) ; Finsch, *l. c.* p. 30.

Two specimens ; in one the underparts are decidedly yellowish, in the other yellowish white.

¹ Cf. "Zur Ornithologie der Südsee-Inseln. II. Ueber neue und weniger gekannte Vögel von den Viti-, Samoa- und Carolinen-Inseln. IV. Vögel von Ponapé (Seniavin Gruppe)," in 'Journal des Museum Godeffroy,' Heft xii. 1876, pp. 14-40, Tafel 1, 2.

9. *MYIAGRA PLUTO*, Finsch, *l. c.* p. 29.

Male and female, as described by me.

10. *RHIPIDURA KUBARYI*, Finsch, *l. c.* p. 29, t. 2. f. 2.

One male, as cited above.

11. *VOLVOCIVORA INSPERATA*, Finsch, *l. c.* p. 27.

Male and female, exactly agreeing with my descriptions, taken from specimens dissected by myself.

There are, besides these, two specimens labelled "Males," which agree in coloration with the female, except that the head and neck above are not greyish, but dark rusty brown, like the upper parts; these, no doubt, are young males.

A third specimen, also marked as a male, is changing from the rufous to the slate-grey dress.

12. *CALORNIS PACIFICUS* (Gm.); Finsch, *l. c.* p. 31.

One male.

13. *APLONIS PELZELNI*, Finsch, *l. c.* p. 32, t. 2. fig. 3.

One male, exactly like my description.

14. *ERYTHRURA*, sp. inc., Finsch, *l. c.* p. 35.

It is to be regretted that this collection does not contain well-prepared specimens of this Finch, as those in the first collection of M. Kubary could not be made out, on account of their preservation in alcohol.

15. *PTILONOPUS PONAPENSIS*, sp. nov.

"*Pt. fasciatus*, Peale," Finsch, *l. c.* p. 37.

Like *Pt. porphyraceus* (from Tonga), but head, neck, throat, and breast decidedly straw-yellowish (not greenish grey); broad ends of all the tail-feathers (c. 8''') dark yellow (not whitish).

Size as in *Pt. porphyraceus*: long. tot. c. 8'', al. 5'', caud. 2'' 7'''.

In my first paper I referred the *Ptilonopus* from Ponapé, with a mark of doubt, to *fasciatus*, Peale, having had only specimens preserved in alcohol, which had apparently caused some discoloration; but I expressed my suspicion that they might belong to a distinct species. Having now before me fresh-skinned and adult specimens, I see that my latter supposition was right. The *Ptilonopus* of Ponapé comes nearest to *Pt. fasciatus* and *Pt. porphyraceus*, having the same dark purplish-red cap, surrounded with a faint yellow line (as in *Pt. fasciatus*), but may be distinguished at once from both by the straw-yellow coloration of the remainder of its head and neck and under surface to the vent (which had faded in the previous specimens preserved in spirit), as well as by the colour of the ventral patch. In the latter respect it comes nearest to *Pt. porphyraceus*, the ventral patch being likewise dark green, but with a slight tinge of violet. The broad yellow apical margin of the tail-feathers is also characteristic of *Pt. ponapensis*. The lilac median spots of the outer

secondaries are as in *Pt. fasciatus*, which differs in its purplish vinaceous-red vent-patch.

16. CARPOPHAGA OCEANICA, Less.

One female, exactly agreeing with specimens from the Palaos (Pelew Islands), except that the hind neck and front part of the mantle are of a darker grey. Size the same.

Not yet recorded from this locality.

17. PHLEGÆNAS ERYTHROPTERA (Gm.)?

Male adult. Front and sinciput to behind the eye, and a narrow line bordering the sides of vertex and occiput, white, as well as the sides of the neck, chin, throat, and breast; sides of head dull brownish, mixed with new white feathers, showing that these parts become also pure white; vertex and occiput slaty black; nape, remainder of upper parts, and wings dark-brown; wing-coverts, scapulars, and some of the mantle-feathers margined broadly with shining coppery violet; underparts and under wing-coverts slaty black, like the remiges; tail-feathers the same, but on the basal half dark grey. Bill and feet horn-brown. A few feathers on the back and shoulders are margined with rufous, as well as the outer secondaries and the coverts of the primaries, showing remnants of the young plumage.

Young (labelled female). Front, sinciput, and sides of head dirty rusty-brown; chin, throat, and breast the same, but mixed and tinged with white; vertex blackish; upper parts not so dark brown, only some of the upper tail-coverts with purplish violet edgings; underparts below the breast dark slate-grey; remiges uniform slaty blackish.

Long. tot.	Al.		Caud.		Rostr. a	Tars.	Dig. med.	
					front.			
in.	in.	lin.	in.	lin.	lin.	lin.	in.	
c. 9½	5	5	2	8	7	15	10	♂ ad.
..	4	11	..	..	7	14	10	Jun.

Although it is very strange that, looking at the local distribution of the species of these Pacific Partridge-Doves, the far western island of Ponapé should yield the same species as is said to occur in the Tahiti group, I see no reason to separate the specimens before me specifically from that described by Latham as the "Garnet-winged Pigeon." His description answers pretty well; but having had no opportunity of comparing it with specimens of the true *P. erythroptera* from the eastern islands, which are very rare in collections, I have thought it desirable to add a mark of interrogation to my appellation, as on close comparison perhaps differences might appear which are not to be ascertained by descriptions only.

18. GALLUS FERRUGINEUS, Gm.

Male and female. Of the specimens from this locality, the male shows no difference from specimens from Sumatra, except that the

primaries are not cinnamon, but dull rusty brown, and the wings are a trifle longer (about $\frac{1}{2}$ inch).

The female differs a good deal from a Sumatran specimen; the back, wings, and remainder of upper parts are blackish, nearly without rusty vermiculations; the wing-feathers are externally broadly edged with fulvous, which is the prominent coloration of underparts; the flank-feathers are margined with blackish; the feet are yellow (not dark, as in the Sumatran specimen).

Although no particulars are given, I am inclined to believe that the differences which this bird shows are due to a domestic state.

19. *CHARADRIUS FULVUS*, Gm.; Finsch, *l. c.* p. 38.

In Mr. Kubary's first collection.

20. *STREPSILAS INTERPRES*, L.

One male in winter dress, the other nearly in full plumage.

Ponapé is a new locality for this cosmopolitan species.

21. *ARDEA SACRA*, Gm.; Finsch, *l. c.* p. 38.

One white specimen (labelled female), and one slate-blue (also marked female). The latter shows only a few faint traces of white feathers along the middle of the chin.

22. *ACTITIS INCANA* (Gm.); Finsch, *l. c.* p. 38.

Sent previously by Mr. Kubary.

23. *STERNA BERGII*, Licht.

Male and female exactly alike.

Ponapé is a new locality for this Tern.

24. *STERNA FULIGINOSA*, Gm.; Finsch, *l. c.* p. 39.

In the former collection of Mr. Kubary.

25. *ANOUS STOLIDUS* (L.), *l. c.* p. 40.

The specimen sent by Mr. Kubary confirms my suggestion as regards the supposed *A. pileatus* in the Vienna Museum, collected during the voyage of the 'Novara,' near Ponapé.

26. *ANOUS LEUCOCAPILLUS*, Gould.

A. leucocapillus, Saunders, P. Z. S. 1876, p. 670, t. lxi. f. 3.

A. tenuirostris, Finsch (*nec* Temm.), pt., Journ. Mus. God. Heft viii. (1875) p. 42.

One specimen, a young one, with not fully developed wings, but in the full colour of the adult; the sides of the head are uniform black, and not tinged with grey, this being, according to Mr. Saunders, a chief point of distinction in *A. melanogenys*.

I may remark that in a good series of Sooty Terns, from Palau, which are *A. melanogenys*, Gould, = *A. tenuirostris*, Kittl. (not of Temminck, as given erroneously by me), there were two young birds, corresponding in size and colour with the one before me, which also

did not show any grey tinge on the sides of the head. *Cf.* P. Z. S. 1872, p. 114.

27. *GYGIS ALBA* (Sparrm.); Finsch, *l. c.* p. 40.

Recorded by Von Kittlitz as seen by him near Ponapé.

28. *PUFFINUS OBSCURUS* (Gm.); Finsch, *l. c.* p. 40.

Already sent by Mr. Kubary.

29. *PHAETON CANDIDUS*, Briss.

Two males and one female; the sexes exactly alike; one male is tinged with very delicate rose-colour.

The island of Ponapé is a new locality for this widely distributed species.

4. On a Collection of Birds from Niuafoou Island, in the Pacific. By DR. OTTO FINSCH, C.M.Z.S., Director of the Museum of Natural History of Bremen.

[Received September 26, 1877.]

The island Niuafoou (Nina-fou, Niua-fu, Niu-Afohu, Onuafu, Niufo, Nua-fou, or Hope or Proby Island of the older maps), situated in lat. $18^{\circ} 38'$ S. and long. $174^{\circ} 55'$ W., halfway between the Navigators' and Viti groups, may be considered, although somewhat distant, as the most northern island of the Tonga or Friendly group. It was visited in 1866 by Dr. Gräffe; but his investigation as regards ornithology did not much increase our knowledge, as he only informed us of the occurrence of one bird on it, a Megapode already mentioned by Dr. G. Bennett (P. Z. S. 1862, p. 247), and described afterwards by the late G. R. Gray as *M. pritchardi* (P. Z. S. 1864, p. 41). I was therefore pleased to receive, through the Museum Godeffroy of Hamburg, an extensive collection of birds from this interesting island, made by Mr. F. Hübner, a young German collector recently engaged, for the exploration of the Pacific Islands, by Mr. Godeffroy.

This collection raises the number of the known birds of this island from one to fifteen; but I am able to include from Mr. Hübner's manuscript notes, kindly sent to me by Mr. Schmeltz, five species more, and make the total twenty species. It is worthy of remark that, according to Mr. Hübner's notes, no members of the genera *Ptilotis*, *Lalage*, *Halcyon*, or *Colluricincla*, so well known to him on the Tonga Islands, occur on Niuafoou. But it seems probable that further investigations will still add some more species, as the absence of peculiar species (except *Megapodius stairi*, which does not occur in Samoa and is confined to this island) is rather strange.

1. *STRIX DELICATULA*, Gould.

Native name *Lulu*, Hübner.

One female; agrees in every respect with that from Eua.

2. DOMICELLA FRINGILLACEA (Gm.).

Native name *Hega*, Hübner.

Three specimens (October 1876); not differing from those from Eua. A young bird shows only a few red feathers on the vent; but the red and blue on the head is the same as in old birds.

3. EUDYNAMIS, sp.?

Mr. Hübner (*in litt.*) mentions having heard the call-note of a *Eudynamis*, which, no doubt, will turn out to be *E. taitiensis* (Sparrm.).

4. COLLOCALIA, sp.?

There is no specimen of this genus in the collection; but Mr. Hübner writes:—"The *Beka-beka* (*Collocalia*) breeds in a hole of a rock on the lake in the interior of Niuafo. I always found two eggs or young ones in each nest. The natives laughed when I told them I wanted to obtain eggs of these birds, as they believed them not to lay eggs at all."

5. APLONIS TABUENSIS (Gm.).

Native name *Megi*, Hübner.

Three specimens (October 1876). The underparts look a little more brownish; but this may be caused by the specimens not being in full plumage and partially moulting; otherwise there is no difference from Eua birds in colour or dimensions, except that the bill is a little shorter; but this may also be a sign of immaturity.

6. PTILONOPUS PORPHYRACEUS (Forst.).

Native name *Kulu-kulu*, Hübner.

Two specimens, adult, male and female (October 1876); are exactly like specimens from Eua.

This species is easily distinguishable from *Pt. fasciatus*, Peale (who first obtained that species on the Navigators'), by the dark purplish-violet spot on the middle of the vent, which in *Pt. fasciatus* is dark purplish-vinaceous. All the specimens which I have inspected from Upolu and Uea (Wallis Island) agree in this respect; but I have no specimens from the Vitis for comparison. According to Mr. Layard (P. Z. S. 1876, p. 495) the Viti bird is of a different species, which he erroneously calls *Pt. apicalis*, Bp. As Bonaparte established his species on a specimen from Vavao (Tonga Island), it belongs undoubtedly to *Pt. porphyraceus*, whereas the name *fasciatus*, Peale, should stand for the Navigators' bird, having been founded on specimens from this locality. If the Vitian *Ptilonopus* is really different from *Pt. fasciatus* and *Pt. porphyraceus*, it must be renamed.

7. CARPOPHAGA PACIFICA (Gm.).

Not in the collection, but observed by Mr. F. Hübner.

8. MEGAPODIUS STAIRI, Gray, P. Z. S. 1861, p. 290 (Samoa!).

M. pritchardi, P. Z. S. 1864, p. 41, pl. vi. (Nina-fou).

M. pritchardi and *M. stairi*, F. & H. Ornith. Central-Polyn. pp. 153, 155.

M. huttoni, Bull. Trans. and Proceed. N.Z. Inst. iii. 1871, p. 14.

M. pritchardi, Hutt. ib. iv. 1872, p. 165.

M. (? burnabyi, Gray), Finsch, Journ. f. Orn. 1870, p. 420.

M. stairi, Finsch, ib. 1872, p. 52; Layard, P. Z. S. 1876, p. 496 (part.).

M. burnabyi, Layard, P. Z. S. 1876, p. 583 (part.).

Native name *Malan*, Hübner.

Male and female, old, and young bird (November 1876). The two former agree exactly in coloration and size; the last is considerably smaller, but in colour like the old.

Al.	Rostr. a	Tars.	Dig. med.	Ung.	
in. lin.	riect. lin.	in. lin.	lin.	lin.	
6 9	11	2 2	14 $\frac{1}{2}$	7	♂
6 7	11	2 1	15	8	♀
5 5	9 $\frac{1}{2}$	1 9	12 $\frac{1}{2}$	6 $\frac{1}{2}$	Jun.

Since Mr. Layard assures us that *M. stairi*, Gray, was based on specimens from Ninafu (and not from Samoa, where no Megapode exists) the older name must be applied to this species.

Mr. F. Hübner gives us the following observations on this bird:—"The breeding-time of this species is not so confined to certain months as has been noticed by Mr. Wallace in respect of certain Malayan species. He gives as the season of incubation August and September; but of this bird I got fresh eggs in October and November also, and, according to Captain Nagel and the natives, eggs are to be found likewise in other months. The newly hatched ones are yellowish-brown with brown undulations; their necks are feathered and not marked as in the old birds. Immediately after leaving the eggs the young birds are not only able to run, but also to fly. The old birds are excellent runners; their flight is somewhat heavy, as in the common fowl; when alarmed they perch on trees. The stomachs of those specimens which I shot I mostly found filled with land-shells, small crabs, and Scolopendras; but in a few cases I found seeds. My captured specimens I fed with Blattæ and Scolopendras, and the young ones (of which I kept one three weeks) with Termites and mashed cocoa-nuts. They refused to eat yams. The male may be distinguished at once from the female by its orange feet, which in the latter are yellow."

9. CHARADRIUS FULVUS, Gm.

Native name *Kiu*, Hübner.

Three specimens shot in October (1876) in change of plumage, showing that this arctic species loses its summer garb in its winter resorts. One specimen has already the full winter dress; the others are moulting and still show many black feathers on the under surface.

10. STREPSILAS INTERPRES (Linn).

Native name *Kiu-hina-hina*, Hübner.

One male in the winter dress (October 1876).

11. *ACTITIS INCANA* (Gm.).

Native name *Kiu-lega-lega*, Hübner.

Three specimens, shot in October (1876); two in full winter garb, one moulting from summer to winter dress, showing most of the latter.

12. *ARDEA SACRA*, Gm.

Native name *Motuku*, Hübner.

One female, of a dusky slate-colour (October 1876).

13. *ORTYGOMETRA*, sp. inc.

A species of *Ortygometra* is mentioned by Mr. Hübner; most probably it will turn out to be *O. cinerea*, Vieill. (*quadristrigata*, Horsf.), the most widely distributed and commonest species in the Pacific.

14. *RALLUS PHILIPPENSIS*, Briss.

Native name *Veka*, Hübner.

Three specimens (October 1876). One old male shows only traces of the maroon-coloured pectoral band, in every respect agreeing with specimens from the Navigators', Palaus, Tongas, New Zealand, and New Holland. Two young birds, one still half in dun feathers, are coloured in the same pattern as the old, but duller and colours less decided.

15. *PORPHYRIO*, sp. inc.

Mr. F. Hübner mentions the occurrence, according to the reports of the natives, of a *Porphyrio* which is probably *P. samoënsis*, Peale.

16. *ANAS SUPERCILIOSA*, L.

Native name *Toloo*, Hübner.

One specimen (October 1876).

Al.	Caud.	Rostr.	Tars.
in. lin.	in. lin.	lin.	lin.
8 3	2 9	20	18

Agrees with specimens from Eua and Navigators' which are, apparently, constantly smaller than the true *A. superciliosa* from New Zealand, as has been remarked already by Peale. In their smaller size they agree with *A. pelewensis*, H. & F. (Journ. Mus. Godeffr. 1875, p. 40); but the latter has the eye-stripe and sides of head isabelline-rusty, and the black cheek-stripe is nearly wanting.

17. *ANOUS STOLIDUS*, L.

Native name *Gogo*, Hübner.

A young bird (October 1876), just developing the wings and tail-feathers, uniform dusky, with white front. Bill not yet full-grown therefore very short (only 14'''), as are the wings (only 7'' 5''').

"This species breeds on trees or the precipitous rocks on the sea-side, and always lays but one egg."—Hübner.

18. GYGIS ALBA (Sparrm.).

Native name *Tala*, Hübner.

One old male (October 1876).

The island Niuafu is a new locality for this widely distributed species.

"This species also lays but one egg, in a shallow hole on a horizontal branch of a tree, without any other material."—Hübner.

19. PUFFINUS OBSCURUS (Gm.).

P. dichrous, F. & H. Ornith. Central-Polyn. p. 244; Finsch, Journ. Mus. Godeffr. Heft viii. 1875, p. 44; id. ib. *Puffinus*, sp.? (Viti).

P. dichrous, *obscurus*, *auduboni*, and sp.? (from Viti), Finsch, P. Z. S. 1872, p. 108–112.

Native name *Teiko*, Hübner.

Male and female (October 1876), in every respect like specimens from Palau; the under tail-coverts are black, more extended in the male, with faint white tips.

Alæ.	Caudæ.	Culm.	Rostr. a	Alt.	Long.	Dig.	
in. lin.	in. lin.	lin.	riçt. lin.	basis. lin.	tars. lin.	med. lin.	
7 2	2 11	12	15	3½	16	15½	♂
7 5	3 2	12	16	...	16	16	♀

For several years I have paid special attention to the Procellariidæ, among the numerous members of which a good many still remain obscure generically and specifically; and none have troubled me more than the *Procellaria obscura* of Gmelin, described originally nearly a hundred years ago by Latham from Christmas Island.

In my former notes on this subject I have endeavoured to show that under this name were confounded about four species, nearly allied but differing in the coloration of the under tail-coverts and in the extent of the black and white on the cheeks. I thought it certain that there were at least two distinct species—one with black under tail-coverts (*Puffinus dichrous*, F. & H.), from the Pacific, the other with white under tail-coverts (the true *P. obscurus*, Gm.), from Madagascar. (Cf. Finsch, P. Z. S. 1872, pp. 108, 110, and Journ. f. Ornith. 1874, p. 208.) Since my last publication on this subject I have had the pleasure not only of examining one of Latham's types in the Vienna Museum (*P. tenebrosus*, Natt.), but also a series of specimens from the Palau group, together with others from Mauritius, Bourbon, and Madagascar, kindly lent to me by Dr. von Pelzeln and Professor Newton. The careful examination of this material, richer perhaps than any one has before had in aid of his studies, convinces me that the coloration of the under tail-coverts forms no distinctive character, as there exist all phases of graduation, from specimens with the under tail-coverts pure white to such as have these parts partially or nearly uniform black. The following notes taken of series of skins will prove this to be the case.

a. Latham's type from the Leverian Museum (now in the Vienna Museum), said to be from King George's Sound. Type of *P.*

- tenebrosus*, Natt. Under-tail coverts black with narrow white tips; the middle row with their shafts white. Exactly like specimens from the Palau group and M'Kean's Island (type of *P. dichrous*, F. & H.); the latter has the white on the base of the lateral under tail-coverts more extended.
- b. Specimens from Madagascar (Vienna Museum). Under tail-coverts of a uniform white.
 - c. Specimens from Bourbon in the Leyden Museum (labelled in Temminck's handwriting *Puffinus obscurus* ♀, Temm. Man. d'Orn.). Like the foregoing, but the lateral under tail-coverts fringed with dusky on the outer web.
 - d. Specimens from Mauritius (Coll. Newton). Lateral under tail-coverts on the whole outer web dusky.
 - e. Specimens from Cape Florida (Deppe, Berlin Museum, *P. obscurus*, Audub., and type of *P. auduboni*, Finsch). "Longest lateral under tail-coverts uniform dusky, the anterior lateral under tail-feathers on the outer vane black, on the inner white."
 - f. Specimen (s. n. *obscurus*?) from Mauritius (Coll. Newton). "Under tail-feathers dark brown, with white tips, exactly like Palau specimens."
 - g. Specimens from Viti (*Puffinus*, sp.? Finsch, P. Z. S. 1872, p. 112, and Mus. Godeffr. 1875, viii. p. 45, note). "Under tail-coverts uniform smoky-black, with hidden white at their bases.

These notes will convince every one that the black or white of the under tail-feathers forms no specific character, and even less so the more or less extent of the black along the rictal line, which sometimes (according to the preparation of the skin) is cut off at the under margin of the eye, sometimes runs a little further down.

P. obscurus has, between the tropics, a wide distribution in the Atlantic and Pacific regions, but has not yet been observed along the coast of Europe, as has been maintained by Temminck, Schlegel, and others.

Its nearest ally, *P. anglorum*, may be distinguished by its larger size and lighter coloration.

On this species Mr. Hübner remarks:—"The *Teiko* lives on a small island, where during daytime it sleeps in holes in the rocks. I obtained my specimens when rowing just before daybreak in a canoe round the islands. We watched when the birds left their holes and, becoming confused by the glare of a torch, allowed us to catch them by hand."

20. PHAËTON CANDIDUS, Briss.

Native name *Tavaki*, Hübner.

One old female (November 1876).

5. On the *Tænia* of the Rhinoceros of the Sunderbunds (*Plagiotænia gigantea*, Peters). By A. H. GARROD, M.A., F.R.S., Prosector to the Society.

[Received October 1, 1877.]

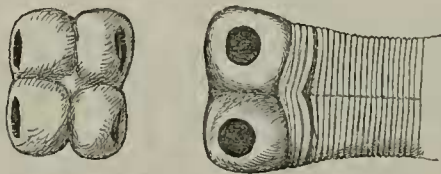
In 1856¹ Dr. Wm. Peters described a tapeworm which he found in an African Rhinoceros from Mossambique, which he named *Tænia gigantea*.

In 1870² Dr. Murie described the adult proglottides of a tapeworm passed by an Indian Rhinoceros (*Rhinoceros unicornis*) living in the Society's Gardens at the time, which he named *Tænia magna*?

In 1871³ Dr. Peters communicated to the Society a Note on the results of a comparison of his specimens of *Tænia gigantea* with Dr. Murie's description and figures of his *Tænia magna*?, showing their identity, and suggesting the generic name *Plagiotænia* for the species.

During this summer I have had the opportunity of eviscerating a half-grown female of *Rhinoceros sondaicus*, from the Sunderbunds, which had been a little more than six months in this country. In the commencement of the colon I found three tapeworms with their heads (scolexes), together with several detached groups of proglottides⁴, these latter being quite undistinguishable from those figured by Dr. Murie, in form as well as size.

Dr. Peters has figured the scolex in his species, which is evidently in a powerfully contracted condition, to which one of my three specimens closely approaches. My other two specimens are not so, and, as a result, differ so much in appearance that I subjoin a figure of one of them.



Scolex of *Plagiotænia gigantea*, much enlarged; superior and lateral view.

Of the specimen here figured the breadth (after being kept in alcohol) of the scolex, opposite the suckers, is 4 millimetres, whilst the depth, to the lower of the two more strongly marked transverse

¹ Monatsb. der Akad. der Wissensch. zu Berlin, 1856, p. 469.

² P. Z. S. 1870, p. 608.

³ P. Z. S. 1871, p. 146.

⁴ In his account of his specimens Dr. Murie has most curiously mistaken the groups of proglottides (which he figures) for single segments.

lines below the suckers (the proliferating area), is 3 millimetres. The breadth of the largest of the proglottides is 3·1 centimetres, their depth being 4·5 millimetres. One decimetre from the end of the scolex the proglottides are 1·42 centimetre in breadth.

In one respect the scolex differs from that described by Dr. Peters, the rostellum or little conical elevation between the suckers being scarcely even indicated as such. This, however, seems hardly sufficient to justify specific separation.

It is an interesting fact that three different species of *Rhinoceros*, so separated in their distribution, should be troubled with the same tapeworm, which must therefore, unvarying, have followed the ancestral species in its different variations, now so easily distinguishable.

6. Notes on the Anatomy of the Chinese Water-Deer (*Hydropotes inermis*). By A. H. GARROD, M.A., F.R.S.,
Prosector to the Society.

[Received October 1, 1877.]

Since the discovery by Mr. Swinhoe of the Chinese Water-Deer, which in the 'Proceedings' of this Society¹ he named *Hydropotes inermis*, naturalists have been anxious to obtain information upon its visceral anatomy, together with other features not ascertainable from adult skins or from the skeleton. At Tours our Corresponding Member M. J. Cornély has succeeded in breeding the species², the Society having allowed him the loan of its male specimen, and his example being of the opposite sex. One of the three young ones, a female, having died shortly after its birth, M. Cornély forwarded it to Mr. Sclater, who has kindly placed it in my hands for description; and it is my notes upon this specimen which I take an opportunity of laying before the Society.

From the tip of the nose to the base of the tail the specimen is 16 inches, the tail being an inch long. From the top of the shoulder to the tip of the hoof of the fore limb it measures 12 inches. The colour of the hair, after being in spirit for some days and then dried, is a dark greyish brown, which is redder along the back than at the sides. The abdomen, as well as the throat, is a dirty white, as are the hairy inner surfaces of the ears.

The fawn is spotted with white³. The spots are not numerous or pronounced. They run in longitudinal lines from the neck to the tail, with a median area about 1·5 inch broad unspotted. There is one line, the upper, fairly defined and uninterrupted; two others, lower down, are irregular and shorter. The spots are not distinct,

¹ P. Z. S. 1870, p. 89.

² See M. Cornély's article in Bull. Soc. d'Acclim. 3^e sér. t. iv. p. 417; and note, P. Z. S. 1877, p. 533.

³ In the Society's 'Proceedings,' 1872, p. 817, Mr. Swinhoe remarks, "I learn from Mr. Russell that the fawn is spotted with dark-brown spots all over the hind quarters." I could not detect any trace of these.

because they are not produced by the presence of hairs which are white throughout, but by dark reddish hairs tipped with white for not more than one sixth of their length.

The nipples are four in number. The cruminal glands are quite small. No supraorbital glands were recognizable. In the fore limb the interdigital skin is inflected but slightly, and there is no special gland differentiated, although the surface of the skin is apparently studded with minute gland-openings. In the hind limb the interdigital skin forms a deep pocket, which almost completely separates the toes, except that they are joined by a thin transverse skin-fold along their posterior edges. The included skin is studded with small glands. I can find no trace of any metatarsal glands.

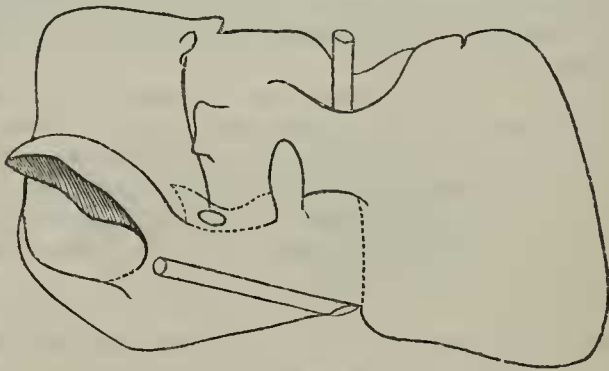
The muffle is as deep as broad, and extends one half up the outer margin of the narial orifice.

In the new-born female the milk-incisors and lower canines are cut, as is the sharp small upper canine. The milk-molars are in place, partly disguised by a layer of mucous membrane covering them. The anterior portion of the palate is covered with the ordinary transverse ridges, running outwards from the middle line; posteriorly it is smooth.

The tongue shows but little of the intermolar eminence. The fungiform papillæ are numerous, and stand out conspicuously. Postero-laterally they develop into lines of papillæ circumvallatæ.

The stomach is not favourable for study, because of its being so little developed. The villi on the rudimentary paunch look like the pile on thick-set velvet. The hexagonal cells in the reticulum are conspicuous though not high-walled. By the aid of a magnifying

Fig. 1.



Liver of *Hydropotes inermis* (still-born).

glass the psalterium is seen to be quadruplicate—in other words, to have its laminæ arranged in four powers, there being two primary laminæ, with secondary smaller folds between them, on each side of which are smaller laminæ, with linear rows of papillæ (rudimentary laminæ) between them, of the fourth power. The large abomasum is not peculiar.

The spleen is circular, flat on its gastric, and convex on its parietal surface.

The liver (fig. 1, p. 790) has no gall-bladder, therein being quite cervine. There are one or two minor lobules so situated as to develop a spurious cystic fossa; and what is still further interesting is, that in that fossa there is a white fibrous cord which runs from the transverse fissure nearly to the ventral margin of the abdominal surface of the right lobe, exactly in the situation of a gall-bladder. Once previously in a Deer (*Cervus virginianus*, I believe) have I seen a similarly situated fibrous cord, which I can hardly believe to be any thing else than an atrophied gall-bladder, although I was not able to trace its connexion with the bile-duct on account of the bad state of preservation of the specimen.

The Spigelian lobe is proportionally well developed, being tongue-shaped (or rusiform) as in the genus *Rusa*. The caudate lobe is of fair size. The umbilical fissure is shallow, the left hepatic lobe being slightly smaller than the right, both being of a square shape.

The intestines measure 9 feet 8 inches, the small intestines $7\frac{1}{2}$ feet long, the large 2 feet 2 inches. The cæcum is $1\frac{1}{2}$ inch long. No trace is visible of an ileo-cæcal gland. There are $2\frac{1}{2}$ colic coils, there being an irregular reversed half-loop in the returning portion of the spiral.

In the bicorn uterus of this new-born animal the cotyledonary papillæ are as manifest as in that of the pregnant adult. There are four in one cornu and three in the other, the highest of these in the latter being particularly large. I have, in my paper on the visceral anatomy of the Ruminantia (P. Z. S. 1877, p. 12), mentioned that in a pregnant uterus of *Hydropotes*, which was lent me kindly by Mr. Ewart, of University College, there were three cotyledons in one cornu and five in the other, which agrees very closely with the specimen under consideration.

The brain is very much like that of the Pudu Deer (*Cervus pudu*) figured by Prof. Flower¹, mainly differing in that the hippocampal gyrus is much less conspicuous upon the superior aspect. It is considerably more convoluted than that of *Moschus moschiferus*, upon the typical Ruminant pattern. I take the opportunity of figuring it (*vide* fig. 2, p. 792) from above.

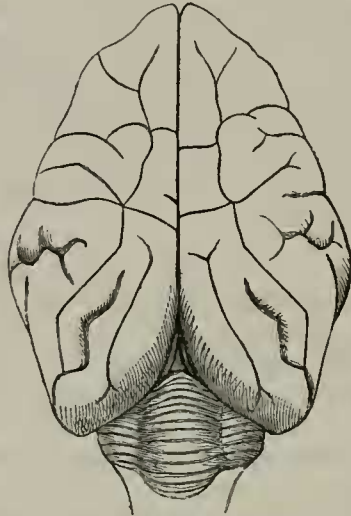
Reviewing the above-described anatomical features, the differences between the visceral anatomy of *Hydropotes inermis* and *Moschus moschiferus* clearly indicate the slightness of their relationship. In the former we find a fairly convoluted brain, a quadruplicate psalterium with 10 primary laminae, no ileo-cæcal gland, no gall-bladder, two and a half colic coils, and an oligocotyledonophorous uterus; whilst in the latter the brain is comparatively smooth, the psalterium is duplicuplicate, with 20 or so primary laminae, a large ileo-cæcal gland, a gall-bladder, three and a half colic coils, and a specialized linear cotyledonary arrangement. In other words, *Hydropotes* is typically Cervine, whilst *Moschus* is any thing but so.

To what group of the Cervidæ *Hydropotes* is most allied there is

¹ P. Z. S. 1875, p. 177.

still considerable uncertainty. That it is not allied to the New-World type is evident from its vomer not extending downwards to join the osseous palate posteriorly. That it is not Cervuline is

Fig. 2.

Brain of *Hydropotes inermis* (still-born).

equally certain on account of its tarsal cuneiform bones being free from the naviculo-cuboids. Its large hepatic Spigelian lobe favours the view suggested by Sir Victor Brooke¹, that it is most closely allied to the Rusine Deer.

7. Note on the possible Cause of Death in a young Seal. By
A. H. GARROD, M.A., F.R.S., Prosecutor to the Society.

[Received October 17, 1877.]

On October 1, 1877, Mr. G. Mellin presented to the Society a female Common Seal (*Phoca vitulina*), which died on the 9th of the same month. He obtained it from the Scilly Islands on September 27th, when it had attached to it the rudiments of the umbilical cord, which dropped off on the 30th, three days later. It must therefore have been born only a few days. When in the Society's Gardens it sucked milk freely from a baby-feeding bottle, and exhibited no pathological symptoms. As it did not take kindly to the water, it remained almost entirely on land.

On post-mortem examination it was found to be three feet two inches in length from the tip of its nose to the end of its tail, along the back. The lungs were of a dark red colour, collapsed, containing scarcely any air, and scarcely floating in water, otherwise also resembling those of a suffocated new-born child. The kidneys were

¹ P. Z. S. 1872, p. 525.

dark on section being made in the cortical portions, and quite white at the apices of the cones.

It is the heart which was peculiar, in that neither the ductus arteriosus nor the foramen ovale were obliterated, and they appeared to be as patent as they could ever have been in foetal life. The question then suggests itself as to whether the animal suffered from cyanosis, of which it died, or whether in the Pinnipedia the semi-foetal circulation continues for longer after birth than in other mammals.

The creature having lived for nine days in the Society's Gardens, and having lost the umbilical rudiment a day before it arrived, was probably about a fortnight old when it died, and ought, according to analogy with the human infant, to have lost all traces of the foetal cardiac peculiarities; whereas the ductus arteriosus and the foramen ovale were not even beginning to be obliterated. This can hardly have been otherwise than pathological, which leads me to the inference that it died morbidly cyanotic, perhaps because it lacked its normal maternal milk, and so was not in a condition to repair its foetal imperfections.

8. Note on the Absence or Presence of a Gall-bladder in the family of the Parrots. By A. H. GARROD, M.A., F.R.S.,
Prosecutor to the Society.

[Received October 17, 1877.]

In a former communication¹ I had the opportunity of showing that the generalization, founded upon the dissection of an insufficient number of genera, that the gall-bladder is wanting in the Columbæ, does not apply to *Carpophaga*, *Lopholæmus*, or *Ptilonopus*. On the present occasion I have to correct a similar error with reference to the Psittaci, because I have found a well-developed gall-bladder in specimens of *Cacatua philippinarum*, *Cacatua goffini*, *Cacatua moluccensis*, and *Calopsitta novæ-hollandiæ*, in which last-named species it is small and easily overlooked.

In my earlier dissections I have not recorded the presence of a gall-bladder in any species of Parrot. That, no doubt, is because, it being absent in so many, I did not expect to find it.

From the above facts it is highly probable that the presence of a gall-bladder in the Cacatuinæ will have to be included among the characteristic peculiarities of this subfamily. At the same time its persistence in them is in favour of the view that the Palæornithinæ, as restricted by me², are but little different from the ancestral Parrots, and the Cacatuinæ still less so. The primitive Parrots must have possessed a gall-bladder—because we now know that this organ is present in the Cacatuinæ, and consequently was not absent in the primitive species, as the probability that it should have been independently developed a second time is infinitely little.

¹ P. Z. S. 1874, p. 257.

² P. Z. S. 1874, p. 594.

9. Reports on the Collections of Birds made during the Voyage of H.M.S. 'Challenger.'—No. V. On the *Laridæ* collected during the Expedition. By HOWARD SAUNDERS, F.L.S., F.Z.S.

[Received October 25, 1877.]

At the request of Mr. Slater, I have undertaken with much pleasure the determination of the *Laridæ* collected during the expedition of H.M.S. 'Challenger,' amounting in all to 47 specimens. It was hardly to be expected that amongst these any previously undescribed species would be found; but in consequence of the careful manner in which the specimens have been catalogued and labelled by Mr. John Murray, many of them are of great value in increasing our knowledge of the geographical distribution of the Oceanic birds. It is highly desirable that more attention should be devoted to this subject, instead of being limited, as is so often the case, to land birds only; and of the results which would probably reward such attention we may judge from the present small collection, which contains examples of 9 species, represented by 31 specimens, of Terns (*Sterninæ*), of 5 species, represented by 11 specimens, of Gulls (*Larinæ*), and of 3 species, represented by 5 specimens, of Skua gulls (*Stercorariinæ*); total 17 species, 47 specimens. Of these species, five have been obtained in absolutely new localities (three of them from places where they could hardly be expected to occur), whilst many of the other species derive unusual interest from the fact of their range being restricted to such seldom-visited spots as the rocks and islands of the South Atlantic. On the whole this collection of Laridæ, although small in numbers, is one of the most productive of knowledge which has yet been made by any of our national expeditions.

1. HYDROCHELIDON HYBRIDA (Pallas).

Sterna hybrida, Pall. Zoog. Rosso-As. ii. p. 338 (1811).

Hydrochelidon hybrida, Gray, Gen. B. iii. p. 660; Saunders, P. Z. S. 1876, p. 640.

[No. 364. ♀. Manila. January 11th–14th, 1875. Eyes black, feet dark red; stomach had crustacea.]

A nearly adult specimen, the head being slightly streaked with black.

2. STERNA VIRGATA, Cab.

Sterna virgata, Cabanis, J. f. Orn. 1875, p. 449; Saunders, P. Z. S. 1876, p. 646.

[1 specimen marked X on label. Christmas Harbour, Kerguelen Island.

1 specimen marked Θ on label. Ditto, ditto.

1 " Ditto, ditto.

1 " Betsey Cove. ditto.]

The first is nearly adult; but the black head is not yet fully

assumed, and the bill and feet are still reddish black; in the second the black head only is wanting to complete the nuptial dress; but the third is in full breeding-plumage, as is also a specimen in spirits.

The specimen from Betsey Cove is a young bird just fledged, many particles of down still adhering; general colour sooty grey mottled with brown, and barred with black on the upper parts; under wing-coverts white.

This somewhat specialized form has hitherto been only found at Kerguelen Island, and appears to be more closely allied to the New-Zealand species *S. antarctica*, Wagler, than to the less restricted form *S. vittata*, which also includes in its range portions of the same island. The principal specific distinctions of the two species are given in my paper on the Sterninæ above referred to.

3. STERNA VITTATA, Gm.

Sterna vittata, Gm. Syst. Nat. i. p. 609 (1788); Saunders, P. Z. S. 1876, p. 647.

[1 specimen. Inaccessible Island, Tristan d'Acunha, October 18th, 1873.

1 specimen. Royal Sound, Kerguelen Island, January 1874.]

Both these specimens are adults in breeding-plumage; but the latter is not a very old bird, the outer webs of the long tail-feathers being still slightly tinted with grey, whereas in really mature examples they are long and white. In pointing out its specific characters (*l. s. c.*), I gave its then known range as from Kerguelen Island up to St. Paul's and Amsterdam Islands, about 700 miles to the north, apparently its head quarters, and as that of a straggler over the sea between St. Helena and Ascension; but the fact of its having been obtained close to Tristan d'Acunha is an interesting extension of these limits. When treating of the few examples then available from the above-mentioned localities, I remarked that the affinities of this species were decidedly with *S. hirundinacea*, Less. (*S. cassini*, Sel.), of the extra-tropical coasts of South America and of the Falkland Islands; and this view has subsequently been confirmed by the examination of a larger series brought home by the French naturalists from the Transit-of-Venus Expedition, at the same time that the two species are always perfectly distinguishable. But in the case of this individual from Tristan d'Acunha (its nearest known approach to South America), it is interesting to observe that, although the example is *undoubtedly* referable to *S. vittata* and *not* to *S. hirundinacea*, it comes nearer to the latter species than any other specimen yet examined. However, its relatively smaller size, grey colour, and the characteristic shortness of the foot and claws show distinctly that the bird in question is *S. vittata*; and although it has a rather unusually long bill, yet there is an absence of the long curve characteristic of the American bird. It may be remarked that the bill in individuals of the present species seems to be peculiarly brittle and friable, which will account for the worn and blunted appearance often to be observed in the anterior portions of the mandibles.

There are the remains of an egg, labelled as taken at Heard Island,

February 1874, which evidently belongs to either *S. virgata* or *S. vittata*; I incline to attribute it to the former, owing to its size and dull appearance.

4. STERNA HIRUNDINACEA, Less.

Sterna hirundinacea, Lesson, Tr. d'Orn. p. 621 (1831); Saunders, P. Z. S. 1876, p. 647.

[No. 652, ♂. Messier Channel, Straits of Magellan, January 4th, 1876. Eyes black, bill and legs vermillion.

No. 723, ♂.	{	Elizabeth Island, Straits of Magellan, January 18th and 19th, 1876. Eyes black; bill and legs red; stomach had fish. A number of eggs were preserved, there being a large "rookery" at one of the low points of this island.]
No. 724, ♀.		

Three fine and fully adult specimens of this well-known South-American species. Sixteen eggs from this locality are naturally rather larger than the type of those of *S. fluviatilis* or *S. macrura*; but otherwise they merely exhibit the same variations in markings.

5. STERNA BERGII, Licht.

Sterna bergii, Licht. Verz. Doubl. p. 80 (1823); Saunders, P. Z. S. 1876, p. 657.

[No. 77, ♂. Levuka, Fiji, July 30th, 1874. Eyes black; feet black, soles brown.] Nearly adult.

[No. 231, ♀. Dobbo, Arru Islands, September 16th and 17th, 1874. Eyes black; feet black; bill light yellow.]

A bird of the year.

[No. 345, ♂. Zamboanga, Philippine Islands, October 24th, 1874. Eyes black.]

Nearly adult, but in winter plumage, the head being merely striated and not black.

[No. 486, ♂. Nares Harbour, Admiralty Islands, March 3rd-10th, 1875. Eyes black.]

Adult, with the black head and crest, and the white frontlet band characteristic of the breeding-plumage.

6. STERNA FULIGINOSA, Gm.

Sterna fuliginosa, Gm. Syst. Nat. i. p. 605 (1788); Saunders, P. Z. S. 1876, p. 666.

[1 specimen ♀. Boatswain-bird Island, Ascension Island, about April 4th, 1873.

No. 124, ♀.	{	Raine I., Barrier Reef, Australia	{	Eyes, bill and feet black. Stomach of first contained a cuttlefish and a piece of coral; that of second, nothing. In great numbers. Eggs rounded and more spotted than those of the Noddy.]
No. 125, ♂.				

Fifteen eggs of this species from Raine Island form a very fine series.

These three specimens are in adult breeding-plumage, the long outer tail-streamers being, however, somewhat abraded.

7. *GYGIS CANDIDA* (Gm.).

Sterna candida, Gm. Syst. Nat. i. 2, p. 607 (1788).

Gygis candida, Wagler, Isis, 1832, p. 1223; Saunders, P. Z. S. 1876, p. 667.

[2 specimens, ♂ and ♀. Boatswain-bird Island, Ascension Island, about April 3rd, 1873.

No. 546, ♀. } Tahiti. September 18th–October 2nd, 1875. Shot
No. 547, ♀. } by Balfour on trees near Papuerini? Eyes black.]

There are also two specimens in spirits.

All these examples have bills broad at the base, although from the mandibular angle to the tip there is some slight variation, those of the Tahitian birds being more pointed, whilst in those from the volcanic crags of Boatswain-bird Island the bill is evidently worn down and blunted. In the coloration of the webs of the feet, also, the Tahitian birds are of a brighter lemon-colour; but the extent of this colour is the same in all, viz. down to and a little below the last joint of the middle toe. The shafts of the tail-feathers and of the primaries seem liable to become white with the age of the feather itself, owing to abrasion of the surface; but in no case are the characteristics wanting which distinguish this species from *G. micro-rhyncha*, only known at present from the Marquesas Islands, where the present species is also found. The fact of its being obtained near Ascension Island is an interesting addition to our knowledge of its range, as it has not yet been recorded on that side, so far as I am aware, beyond St. Helena.

8. *ANOUS STOLIDUS* (Linn.)

Sterna stolidus, Linn. Syst. Nat. i. p. 227 (1766).

Anous stolidus, Gray, List Gen. Birds, p. 100 (1841); Saunders, P. Z. S. 1876, p. 669.

[2 specimens. Inaccessible Island, near Tristan d'Acunha, October 16th, 1873. Eyes black. Live in caves and on trees.

No. 140, ♂. Raine Island, Australia. Feet, bill, and eyes black.

No. 444, ♀. At sea: lat. 1° N., long. 137° 11' E.

No. 485, ♀. Admiralty Islands, March 3rd–10th, 1875.

No. 564, ♂. At sea, near Tahiti, October 1875.]

In alcohol. Egg, and newly hatched young, St. Paul's Rocks, Atlantic, August 28th, 1873.

9 eggs from Raine Island, August 31st, 1874.

This is a very interesting series, showing the changes resulting from age, both in the individual and in the annual plumage. The examination of a great number of Noddies from various localities tends to show that specimens in clean and fresh plumage are very rarely to be met with; and the weatherworn appearance of some individuals, when compared with freshly moulted birds, would lead the superficial observer to suppose that he had before him distinct

species. The example No. 564 is an instance of this, it being a superb *old* bird, freshly moulted, with all the edges of the feathers perfect, the crown of the head of a pale lavender, and with much smoke-colour on the throat, neck, and breast; the primaries and tail-feathers like satin, and having in some cases not quite attained their full length; altogether the finest specimen of the common Noddy I ever saw. Both this and the next species are described in Mr. Murray's journal as being very abundant at the Admiralty Islands, hovering in immense numbers over shoals of fish. That the general range of these species is intertropical is tolerably well known; but it is somewhat surprising to find both this and *A. melanogenys* at Inaccessible Island, close to Tristan d'Acunha, in 37° S. latitude, on the peculiar domain of the Albatross and the Penguin. The two examples of *A. stolidus* from there are absolutely identical with specimens from the Tortugas; and I can find no reason for attributing any of the larger form to other than this species.

9. *ANOUS MELANOGENYS*, Gray.

Anous melanogenys, G. R. Gray, Gen. Birds, iii. p. 661, pl. 182 (1849); Saunders, P. Z. S. 1876, p. 670.

Anous tenuirostris mult. auctorum, nec Temm.

[In alcohol. Adult, young in down, and egg. St. Paul's Rocks, Atlantic Ocean.

1 specimen. St. Paul's Rocks, August 27th, 1873.

1 specimen. Inaccessible Island, Tristan d'Acunha, Oct. 16th, 1873. In caves and on trees.

No. 484, ♀. Admiralty Islands, March 3rd and 10th, 1875.

No. 508, ♀. At sea. March 20th, 1875. Stomach contained small crustacea. Eyes black.]

In the adult specimen from St. Paul's rocks, where the breeding-season was far advanced, the feathers are much worn; and the bird from Inaccessible Island appears to be only a few months old, the portion of the bill in front of the mandibular angle being very short and weak. Under the head of the preceding species I have already remarked upon the noteworthy fact of these two Noddies being found so far south; and it would be interesting to know if they breed there. The specimens from the Admiralty Islands are adults.

10. *LARUS RIDIBUNDUS*, L.

Larus ridibundus, Linn. Syst. Nat. i. p. 225 (1766).

[No. 363, ♂. Manila, January 11th and 14th, 1875. Eyes brown.

4 specimens, 2 ♂, 2 ♀. Yokohama, Japan, May 1875. Eyes brown.]

The Manila specimen and two of the Japanese are birds of the previous year; the other two are adults. One of these, a female, is remarkable for its small size, the wing (allowing for a deficient primary) being only 11.5 inches long; still I have seen and possess similar examples of diminutive females from other localities, as well as from Japan and China; and the other parts being in proportion, there is nothing else to distinguish this from the ordinary form.

11. *LARUS CANUS*, Linn.

Larus canus, Linn. Syst. Nat. i. p. 224 (1766?).

♂. Japan, May 1875.

A bird of the previous year; wing-coverts much abraded.

12. *LARUS GLAUCODES*, Meyen.

Larus glaucodes, Meyen, Obs. Zool. p. 115, pl. 24 (1834); ScL. & Salv. P. Z. S. 1871, p. 578.

[No. 650, ♂. Messier Channel, Straits of Magellan, January 4th, 1876. Eyes hazel, feet and bill reddish.]

A bird of a full year old, the tail being nearly devoid of the band showing immaturity; but the shoulders retain some brownish feathers.

Two eggs presented by Mr. Deans, of Stanley, Falkland Islands, marked "Tern Gull" appear to belong to this species, which is a well-known breeder in that group.

13. *LARUS NOVÆ-HOLLANDIÆ*, Steph.

Larus novæ-hollandiæ, Steph. in Shaw's Gen. Zool. xiii. pt. i. p. 169, ex Lath. (1825).

Larus jamesonii, Wils. Ill. Orn. pl. xxiii. et descript. (1831).

[No. 131, ♂. } Raine Island, N. Australia. Eyes white; bill

No. 132, ♀. } coral, tip darker. Only a few about the island.]

From its larger size and the difference in the amount of white on the primaries of the adults, this form seems to be fairly separable from *L. scopulinus*, of New Zealand, and is undoubtedly distinct from its ally, *L. hartlaubi*, Bruch, of the Cape of Good Hope. Specimens from the northern portions of Australia are much wanted; and these two examples are therefore of unusual value.

14. *LARUS DOMINICANUS*, Licht.

Larus dominicanus, Licht. Verz. d. Doubl. p. 82 (1823).

[1 specimen. Christmas Harbour, Kerguelen Island.

No. 683, ♂. Nassau Harbour, Straits of Magellan, January 11th-13th, 1876. Eyes grey; bill yellow; angle of lower mandible red.]

1 egg from Kerguelen Island } The latter partake rather more of the
2 eggs from Elizabeth Island, } bold markings characteristic of the
Straits of Magellan. } eggs of *L. marinus* than the former.

Two adult specimens. I can detect no specific difference between the examples of this form, which ranges from New Zealand to South Africa, and thence to the extra-tropical portions of South America.

15. *STERCORARIUS ANTARCTICUS* (Less.).

Lestris antarcticus, Less. Traité d'Orn. p. 616 (1831).

Stercorarius antarcticus, Saunders, P. Z. S. 1876, p. 321.

[1 specimen. Inaccessible Island, Tristan d'Acunha, October 16th, 1873.

1 specimen. Christmas Harbour, Kerguelen Island, January 1874.

No. 732, ♀. Falkland Islands, January-February 1876. Eyes hazel.]

The two former are of the usual dusky colour; the last shows the